Hints on Grape Culture.—II.

IN our former article we have thrown out, in as few words as possible, some necessary hints in regard to *exposure* and *shelter*. The latter is a matter of the first importance, to which little attention has heretofore been given, and which we shall enlarge upon more fully at another time. We shall now give our attention to some hints on the *Soil and its Preparation*.

There has been no little discussion, and some difference of opinion very naturally, as to what is the best soil for the vine. In general terms, it may be said that it will grow in almost any soil, from the lightest sand to the heaviest clay; but of course with varying results, and these, in many instances, far from satisfactory. There is a preference in soils, and in some cases this preference is of a very decided character. A pure sand and a stiff clay are almost equally to be avoided; the latter, however, in some respects, is to be preferred. They are both nearly equally expensive to be put in good condition for growing the grape. Between these two extremes there are many kinds of soil well suited for our purpose. The soil best adapted for the grape is one that is light, open, and warm, and what is usually termed a sandy loam naturally answers to these conditions more nearly than any other. Whatever is done to the soil artificially, in the way of preparation, should be with a view to assimilate it as nearly as possible to this character. There are some soils which, in respect to their constituents and mechanical condition, are naturally in a good state for the successful growth of the grape, except, perhaps, they may not be sufficiently deep. What is needed, in precise terms, is this: a soil that is light, moderately rich, deep, warm, and porous, and that contains a due proportion of carbonaceous matter. It should be *light*, because the roots will more readily take possession of it, it will be easier to work, and more largely benefited by necessary top-dressings, as will subsequently be shown; *moderately rich*, that the vines may have sufficient food for the production of good wood and the best fruit, but not so rich as to produce rank wood at the expense of the fruit; *deep*, not only that the roots may have ample room to ramble in, but that the injurious effects of drought and heavy rains may be avoided; *warm*, to insure as far as possible the health of the vine, and promote the early ripening of wood and fruit; indeed, ripe wood and ripe fruit are almost convertible terms; *porous*, that water may never lodge in it, and that it may readily absorb dews and atmospheric moisture, the latter never being entirely absent even in our arid climate; the soil should contain *carbonaceous matter*, because, in our opinion, it not only gives warmth to the soil, but is intimately concerned in the production of fruit of the highest excellence for the table. It will be perceived that the above conditions bear such an intimate relation to each other, that one can not be removed without materially impairing the others; and this fact presents a strong argument of their necessity. To elucidate these points fully would alone require several pages; but our present purpose, as already stated, is mainly to throw out suggestive "hints" as we go along, lingering a little from time to time at some particular point, as the importance of the subject may seem to demand.

The *subsoil* is scarcely less important than the surface soil; for if, in any particular spot, this can not be brought within our conditions, it must be abandoned, no matter how good the surface soil may be. It becomes, therefore, a matter of

the first necessity, in locating a vineyard, to examine the character of the subsoil, and see whether, by trenching, draining, etc., it can be brought within the conditions named. In a majority of cases this can be done; but it may be well to mention some in which it can not. For example, a soil immediately underlaid by beds of marl, as in some portions of New Jersey, should not be selected as a site for a vineyard. The vines will grow finely for a few years, but as soon as the roots penetrate the cold, damp strata of marl, mildew and rot appear, and render a crop of grapes entirely hopeless. Rocky subsoils sometimes, owing to their formation, hold water; and it being difficult or impossible to drain them, they should then be avoided. A subsoil of stiff clay, unless it can be under-drained, can not be brought within our conditions, and must also be avoided. All subsoils, in short, which can not, by drainage or otherwise, be rendered dry, are unfit for the growth of the grape; depth and dryness must be regarded as axioms in grape culture. If we were compelled to choose between a stiff clay and a light sand, we should take the latter, as being the least expensive and troublesome to ameliorate and put in suitable condition for the production of good grapes. A stiff clay, unless well drained, is very wet and cold during heavy rains, and dry and baked during a drought. A light soil, deeply worked, and incorporated with proper materials, seldom exhibits either extreme. Columbia county, with its heavy clay, is parched up before the light soils of Long Island begin to feel the effects of a drought. It will be readily seen, therefore, why a light soil is better for the grape than a heavy one, a somewhat uniform temperature being essential to the successful cultivation of even our robust native vines. It is the sudden, and extreme changes of our climate which make it impossible to grow here the varieties of *Vitis vinifera*, none of which are constitutionally fitted to withstand the vicissitudes of our changeable climate, and the effect of which is chiefly seen in the form of mildew and rot. A heavy clay may be ameliorated by the addition of sand, just as a light sand may be ameliorated by the addition of clay; but the operation is expensive and laborious, unless the material is near at hand. There is nothing, however, of equal value to muck for improving the condition of a sandy soil, if, indeed, there be any thing more valuable to add to any soil not already rich in vegetable matter. What heavy clays need first and most, however, is thorough under-draining; and we do not believe that a permanent and good vineyard can be made on such soil without it. The addition of sand and other matters to lighten its texture will form valuable accessories, but it can not be brought within our conditions until all surplus moisture shall have been got rid of. A stony soil is not in itself objectionable, only in so far as it is troublesome to cultivate and keep clean. Such soils often make the best vineyards when properly prepared.

Some allusion may be made to the mineral constituents of the soil. It is supposed that a limestone formation is peculiarly favorable to the production of the best grapes; the remark, indeed, will hold good of all fruits. The presence of lime in the soil is indispensable. Quartz and granite soils are also good, and lava districts are famous for producing grapes of peculiar excellence. But the geological aspect of the subject may very well be dispensed with for the present, with the simple remark, that no other fruit-producing plant will grow in such a diversity of soils as the grape, though, of course, as already remarked, some soils are decidedly better than others, especially where fruit of the best quality is desired.

But we have filled up our allotted space, and not one word has been said about the *preparation* of the soil. We must make it the subject of our next article.

HYBRIDIZING.

BY ANDREW S. FULLER.

THE word hybrid, when correctly used, is only applied to the offspring of a mixture of two species. For instance, if we should take the native strawberry (Fragaria Virginiana) and the English strawberry (Fragaria vesca), and, by fertilizing one with the other, produce a plant with the characteristics of both parents combined, we would then have a proper hybrid. But if we take the Hovey strawberry and fertilize it with the Wilson, the result would only be a cross between two varieties of the same species.

This we hold to be the correct view of the case; but custom, which sometimes becomes law, has broken down this barrier, and we now call a seedling plant a hybrid, whether it be the mixture of two varieties or two species. This is to be regretted, as true hybrids are forced productions, and not natural; consequently they are very rare—so much so that we have often thought that it could be said with propriety, that *species* do not intermingle; and the few cases that we have on record of their having done so might be called exceptions, which are said to be necessary to every rule.

Plants in a state of nature perpetuate their species and varieties with great uniformity of character. Yet a slight change is very often observed, and it has been upon these variations that pomologists and florists have mainly depended as the starting point from which they produce their innumerable varieties.

The effects produced by change of soil and climate upon plants, when removed from their native habitat, have long been observed, and these variations turned to valuable account. Although these changes have been slow, yet, by the aid of science and the preservation of them, we are indebted for most of the valuable fruits and flowers in cultivation.

When plants are removed from one country to another, and become acclimated, the effect of this change will sometimes show itself in the seedlings grown from them, in a distinct and wonderful manner—so much so, that we are often inclined to think that it is the result of accidental hybridization.

This leads many to believe that they have a hybrid variety, when it is only a variation produced by natural causes.

If we have a variety of fruit which produces its kind without variation, it is not positive proof that it is a distinct species; but it only goes to show that the natural forces of the plant are perfectly balanced.

When there has been a displacement of these forces, either by hybridization or cultivation, and the functions of generation have been disarranged, then variation begins, and the effects of hybridization are the more difficult to determine.

Suppose we fertilize the Isabella grape with the Sweetwater, and the result is a white variety, would the simple fact of its being white be a proof that the operation had been successful? No, not at all; for there have been plenty of white varieties produced from the Isabella, without its being brought in contact with any white kind.

To convince us that hybridization has actually taken place, we would want to see some of the prominent characteristics of both parents intermingled in the offspring.

Again: if the offspring should appear to be only a reproduction of the mother plant without variation, it would not prove that hybridization had not taken

place; but it would only show that there was a prepotent power in the Isabella to reproduce itself, and the influence which the artificial fertilizing had produced was entirely hidden in the present generation of seedlings. But in the next generation it might show itself distinctly without any effort on our part to bring about such a result.

A good plan of determining whether a plant is a true hybrid or a mixture of two species, is to plant a quantity of its seeds; a portion of the seedlings thus produced will be pretty sure to show some of the characteristics of the original varieties; or, in other words, the mixture will again separate, and a part will breed back each to its original progenitor.

The Allen's Hybrid grape is said to be a hybrid between the Vitis labrusca and the Vitis vinifera, two distinct species. By growing a quantity of seedlings from it, we hope to prove that this is a fact; and if our position is correct, we will find a portion of them showing more of the Vitis vinifera form than their parent, while others will show more of the Vitis labrusca character.

These difficulties which we have mentioned of determining the cause that may have produced a certain change, ought not to check us in our efforts in hybridizing. The world cares but little how a thing is produced, or where it is from, for the people are interested only in the results.

Our greatest danger lies in the fact that partial success will often direct our thoughts into a region of false theories, from which it is difficult to extricate ourselves without unlearning all that we have previously learned.

In all our efforts at hybridizing, the adaptation of the plants to the circumstances under which they are to be grown should engage our attention.

If it is our object to produce a plant for this latitude, we should avoid, if possible, crossing with a plant that is tender or otherwise unsuitable.

The aim in all of our operations should be to develop those qualities that are valuable, and discourage those that are not, for their intercrossings will often produce an individual variety more valuable to us than either of the parents.

Again, you may take two superior varieties and cross them, and the result will be a kind that is very inferior.

It is this uncertainty that makes the operation of hybridizing plants so fascinating. If we could see exactly what the results of our labor would be, it would rob it of half of its charms.

When Lady Holland introduced the dahlia into England, in 1804, suppose some enterprising artist had undertaken to make a picture of what it would be in 1861, how near, think you, would he have approached it? He might have taken the rose, tulip, hollyhock, or any other flower of his day, and from these he might have pictured its future; but he would have never dreamed that the insignificant single dahlia before him would become, in so short a time, a flower the form of which is a true mathematical figure.

We have much at the present time to stimulate us to make extra exertions to produce new varieties of fruits. The desirable qualities of our fruits are distributed among too many varieties; and what we want now is, to bring these together and concentrate them in a less number.

We want the large size of the Union Village grape, the color of the Anna, and the rich vinous quality and hardy nature of the Delaware combined in one vine. The man who will produce such a variety (and it is possible to do it) will do his country a great favor, besides making a fortune for himself.

We want a pear as good as the Seckel, and as large as the Duchess d'Angoulême. A Gravenstein apple that will keep at least three months longer, and not

lose its flavor. A currant as large as the cherry, and as sweet as a raspberry. In fact, our wants are too numerous to mention.

Among the great perfections we have too many imperfections, and it remains with us to say whether these shall be multiplied or reduced.

There are a thousand chances that we shall descend in the scale to one that we will ascend, when we undertake to raise a new variety from seed; but that one chance was the foundation on which Knight, Van Mons, Vilmorin, and many others depended for their success when they produced the many fine fruits and flowers that we are now enjoying.

We hope every one who cultivates a fruit or flower will make an effort, the coming season, to produce some new and valuable variety by hybridization.

The seedling strawberries that I showed last year were the results of very careful hybridization, and the result was that nine-tenths of the number were of fine size, as good as the original, but only one in a hundred is of superior flavor.

[The above paper was read before the American Institute. Something to the same purpose was intended for these pages; but as this is so well done, we adopt it readily for the other. It deserves a careful perusal, and we hope will draw attention to a subject too much neglected among us.—Ed.]

NOTES ON THE CENTRAL PARK.

BY VIATOR.

As you talk to your readers through the medium of the Horticulturist from month to month, it is natural that they should feel at times a desire to ask some questions, make suggestions, or at least to acknowledge their satisfaction or approval of what you say upon such subjects as are of particular interest to them. With some such feeling as this I have taken up my pen for the purpose of thanking you for the series of articles you are giving your readers in relation to the Central Park.

I have read these articles with much interest, not only so far as they have reference to this particular work, but as they are applicable to the arrangement and working of other ornamental grounds. Every person who has given any considerable attention to this subject, must feel that just such strictures as you have made are highly practical, and much needed in most works of this kind all over our country.

It is expecting, perhaps, too much from the managers of the Central Park to suppose that they will give an example of arrangement, planting, and ornament, the best possible in all respects. Yet this should be their aim; and any hints or suggestions, pointing out material errors or defects which may exist, should be noticed and corrected before the work has so far progressed as to render this much more difficult than it would be at the present time.

A work like this, destined to be an example for other similar works in this country, and which, in some of its features, will be largely copied by those who have grounds of smaller extent, should be an example in every respect of the highest and most finished style of Landscape Gardening—perfect, so far as possible, in all its details.

With the means placed at the disposal of those having this undertaking in charge, the public will hardly be satisfied with any thing less than the best work that the best talent of this country can supply.

The example you have referred to, that of Mr. Kelly, at Rhinebeck, as an example of grouping, of its kind, is quite unexceptionable, only lacking—if in any thing—in the element of evergreens to give a little more variety to the various groups; but of this I am somewhat in doubt. As seen on a bright and sunny day in August or September, one can scarcely imagine a more lovely scene than that presented by the fine lawns and beautiful grouping of trees upon this place.

Where the surface is more uneven and rough, as at the Central Park, evergreens could be used to a much greater extent, and be made effective.

The lawns at Mr. Sargent's, at Fishkill, show to what perfection this particular and necessary branch of Landscape Gardening is capable of being carried; and while we approve of the closest approximation to this example which may be available, yet we think that in a ground so large as the Central Park, the three-day system of clipping the lawns will hardly be looked for, unless in certain highly cultivated parts of it. It occurred to me that the splendid old trees at Montgomery Place, at Barrytown, would be a good example of what some of the trees now planted in the Central Park, at the distance of six or eight feet apart, might become in time, and also as showing what might hereafter be their appearance upon some of the smaller plots, as now planted.

At this place, also, are fine examples of what can be done in grouping together the different families of trees, and those that are similar in foliage. We somewhat doubt, however, the possibility of giving all the variety required in such grounds as the Central Park, by a close adherence to this rule. While making these general remarks in reference to the Central Park, I will give you the result of some of the impressions made upon me while visiting there in July last, and of which I made notes at the time—even at the risk of repeating several things you have already noticed. I went there, as others do, expecting to find an example of the highest excellence in the art of Landscape Gardening, and it was with a feeling of great satisfaction, almost immediately upon entering the grounds, that I noticed what then, and afterward seemed to be some of the best features of the work yet done in the Park. In the smoothness and finish of the surface grading, the easy and natural rolling grades, the absence of flat surfaces and depressions in the plots, it exhibits a pleasing adaptation to the requirements of the ground, while the deep covering of broken stone upon the roadways shows a thorough preparation of the foundation for securing good roads and walks. The sunken crossings is a happy thought, and, if well carried out, will be not only a great convenience, but an effective feature in the appearance of the Park.

The attempts at planting along the Mall with large Elm trees is a sore feature in this part of the Park, and the idea of ever realizing from them even passable specimens of good trees seemed to me perfectly hopeless.

A few specimens of the English Elm that were planted in their vicinity were now more thrifty, and promise far better for the future, than any portion of those miserable and mutilated examples of one of our most noble forest trees.

The elaborate stone work at the termination of the Mall near the lake, although not fully comprehended, seemed to contemplate a large expenditure of money to produce a very doubtful effect; and, indeed, the straight and stiff lines of the Mall itself do not well harmonize with the graceful and easy curves of the roads in other portions of the Park.

The crowded style of planting large growing trees within a few feet of the roads and walks, and of each other, is suggestive of much work in removal, and a failure of producing in future a satisfactory arrangement of grouping. In the multiplication and repetition of similar groups along the roads and walks there is a want of adaptation to the requirements of a ground so diversified in its character.

The elements of variety and expression do not appear to be well worked out. A greater variety in the style of the bridges and other structures, and of the material employed in their construction, might be used with advantage. The surface of the ground is too much crowded with trees and shrubs, while there is a want of well-defined groups, suitably located, and properly connected by single trees, with wide stretches of open lawn.

Another feature in the planting that appeared faulty is, that the central parts are too much crowded, and the boundary planting is too thin and sparse, and does not sufficiently conceal the outer lines of the Park. Here it would seem proper to make the planting closer, and, by concealing the boundaries in some measure, to give more apparent breadth and extent to the Park.

The quality of the trees as good specimens of their kind, is, in many of them, not what it should be. As a permanent tree, no inferior specimen should be allowed to be planted upon these grounds.

A common fault in American attempts at Landscape Gardening is the close planting, and the contracted arrangement of the roads and walks, giving our grounds a crowded appearance, and making one feel, while visiting them, as if shut in and imprisoned. There is a want of breadth and freeness essential to the idea of a pleasure resort.

My visit was made at the close of a long dry time, the after part of the day closing with a severe shower, the first for several weeks previous. This showed, as I thought, two prominent defects. While the work upon the foundations of the roads and walks is very thorough and perfect, the covering material and shape of them are far from being what they should be. The material used for covering them either slacks and decomposes, or is so soft that it becomes finely pulverized by use, and the dust collects upon them to such an extent, that in a dry time it is exceedingly unpleasant walking upon those most in use, and when the wind blows the dust is carried over the grass upon the adjacent lawns, so as to entirely destroy their effect.

The roads being flat on their surface, the dust necessarily accumulates and remains upon them, rendering them muddy, and allowing the water to stand upon the surface on some portions of the roads and walks during severe rains. If the surface of these roads and walks were sufficiently rounding to carry off the water speedily to the sides, and they were well drained, it would, in some measure, remedy these evils by disposing of the surface water, and also, to some extent, wash off the dust that now accumulates upon them. But probably a better covering material will be necessary before the roads will show that degree of perfection the work demands.

Where there are steep grades I observed the water in several instances running down the middle of the walks. A remedy here applied, that of paving the gutters at the sides, produces any thing but an agreeable effect, and with a proper construction of the walks (with sufficient side-drains) might be dispensed with. The almost universal desire to finish the working and planting of ornamental grounds in the least possible time, and the expectation of securing a speedy effect, lead constantly to errors. Traces of this kind of work are not unfrequent in almost all our best places.

While our periodicals furnish us with many well-compiled articles upon the general subject of Landscape Gardening, much of a more practical nature is omitted. What is greatly needed is well-prepared communications, pointing out what is defective, and how that which is erroneous in our present practice may be remedied.

It is in this light we look at the several articles you have recently given us upon the subject of the Central Park, and which, we trust, may still be followed by more of like character.

[The above, from a gentleman of intelligence and refined taste, and thoroughly familiar with the subject, is peculiarly acceptable. We shall from time to time publish other communications to the same effect. Viator's article is a fine example of what we have tried to impress upon our readers, that just criticism and courtesy are by no means incompatible. You are right, Viator; we love to be brought into communion with our readers just in the way you indicate. We like to feel that we have established something like a bond of sympathy with them. In our articles on the Central Park we have pointed out some grave errors, solely with the view that they might be corrected as far as possible, and at least avoided for the future. We have thought, too, that in pointing out errors in the composition of the Central Park, we might do something to prevent their repetition elsewhere; and we have the satisfaction of knowing that in this we have in some measure succeeded. How far the Commissioners of the Central Park will avail themselves of such well-meant offices remains to be seen. It is because they have ample means that we look for grand results. Viator's criticisms are well conceived, and to the point. We agree with you, that in portions of Mr. Kelly's grounds there is a deficiency of evergreens, but he seems to have been governed by a desire to avoid the common error of overdoing the subject; in this he has erred on the right side, and has at least secured an effective and beautiful simplicity.—We hope to give you soon our ideas of the Central Park lawns. The "three-day system" ought to obtain in certain parts, and, as you suggest, would be desirable in all; but we should be satisfied with something less than this.—What a sight it would be to see the grand old trees of Montgomery Place removed bodily to the Central Park Mall! In order, however, to get rid of the mutilated Elms that now disfigure it, we could almost be content to see no trees at all there. A little more such planting on the Mall would justly win for it the appellation of *Via Dolorosa*.—Groups of similar foliage can, to a certain extent, be made pretty and effective; but beyond that it demands a sacrifice which we are loth to make. The Mall and the circles at the end of it would alone form the subject of an article. We agree with you in all you say of the crowded planting and grouping; they are very defective. The *quality* of the trees we have made the subject of an article soon to appear: many of them should find their way to the wood-pile. In short, we commend the criticisms of Viator to the serious consideration of the Central Park Commissioners. They are well and kindly said, and should receive the attention they deserve.—Ed.]

THE VERBENA.—HONOR TO WHOM HONOR IS DUE.

BY PETER HENDERSON, JERSEY CITY, N. J.

Mr. Editor:—In your January number there is a communication from Mr. Pentland on the Verbena, in which he takes the ground that we are carried away from the demerits of the imported varieties by their high-sounding ducal or lordly names. Mr. Editor, this is a libel on the good sense of our fraternity, that I am surprised to see you, to some extent, endorse.

Let us look at the matter. I suppose there have been as many "native" seedlings "sent out" as there have been foreign varieties imported. Now what are the relative proportions of each that has survived the test of merit? I grow upwards of a hundred varieties, the best of all I can find, old or new, native or foreign, and yet I find that at least three-fourths of them are the imported varieties; and this I believe is a fair average of the proportion grown of each by all florists of any extent in the country. Even Mr. Pentland's collection is no exception to this rule, for in his catalogue, now before me, in forty-two varieties there described, *thirty of them are foreign varieties*, and yet this collection, he says, is "unsurpassed by any in the country." Now, if this is so, why this ungrateful tirade against John Bull & Co.? or how does Mr. Pentland reconcile the opinions given in his catalogue with those in his published letter?

But to recur again to the seedlings. I believe, with Mr. P., that there is no reason why we should always be dependent on England for our new varieties; but he may rest assured we will until we produce American varieties to equal or excel them, which he has given no tangible evidence to show we have done as yet.

Mr. Pentland, in alluding to some fine seedlings he saw, says, "We know that a seedling Verbena never shows its best qualities the first season." I am sorry to have to differ from him entirely in this view, having ever imagined the reverse to be "well known," and that most gardeners of experience believe that we have ever a more healthy growth from a seed than from a cutting or layer, in plants of any kind; and also, that that very circumstance makes us too often deceive ourselves and the public, by inducing us to send out the offspring of a promising seedling, that, when less vigorously grown from a cutting, is comparatively worthless.

Last summer, from my importations, I saved about forty varieties of Verbenas, flowered them, and found about one-third of them no better than others of the same styles we already possessed; the others I retained as being superior to any thing I had, out of a bed of nearly three thousand seedlings, from as carefully collected seed as I could find. The seedlings made a splendid show, as they always do—much more so than the named varieties alongside—but were deficient in *substance* and *marking*, which were the characteristics of the imported sorts. Now this, I think, can only be accounted for by supposing that in England they are more careful in choosing their seed, and, from growing them in much larger quantities, have a larger field to select from; for unquestionably our climate is better fitted for producing seeds, and consequently varieties, if we only gave the matter the same care. There is no denying, that to them we are indebted for all the leading styles of Verbena, of which Geant des Battailles, Rosy Gem, Leviathan, Mrs. Holford, Alice, Maonetti, Gondolier, Gen. Simpson, Topsy, Mrs. Woodruff, Madame Abolt, and Victory, form a dozen which, I believe, we have no dozen of American varieties to equal, although the above are from three to twelve years

introduced. To be sure we have two American varieties perhaps superior to any of them, namely, "Mrs. Field" and "Mrs. McKay;" but as these are both Jersey seedlings, some of your facetious readers might insinuate that these also are "foreign" varieties.

But what is true of Verbenas is equally true of all the leading florist's flowers, Roses, Dahlias, Chrysanthemums, Fuchsias, Geraniums, etc., in all of which for the wonderful improvements for the past few years we are almost entirely indebted to the English and French growers. No doubt we are often enough humbugged, but there is always sufficient wheat among the chaff to induce even the most knowing birds to try again.

So, Mr. Editor, I think, before we arrogate to ourselves a superiority or even an equality in seedling raising with our cousins across the water, we must turn a new leaf; we must have some central Horticultural Society offering respectable inducements for seedlings of merit, where the claims of our "bantlings" will be decided upon by competent and disinterested judges, and not by the partial eye of the raiser or his well-meaning friends. Until such is the case, and publication thereof be made by the Horticultural journals, our seedlings at most can only have a local reputation.

[The above was received a couple of days after Mr. Veitch's article, but we deemed it best to give one at a time. A part of our remarks to Mr. Veitch's article will apply to this. In regard to the "libel" which we are said to have "endorsed," we have only to say, that we simply affirmed a fact, which Mr. Henderson does not and can not deny. Under the old but exploded axiom, "the greater the truth the greater the libel," we plead "guilty." The fact is, both Mr. Veitch and Mr. Henderson demonstrate the simple truth we enunciated: "we do not yet fully appreciate the merits of our own productions;" but when we come to assign reasons for this fact, there is naturally some difference of opinion. The reasons assigned by Mr. V. and Mr. H. have much to do with the matter, but there is another underlying the whole subject which acts still more powerfully. If we wished to prove our position, we should engage a berth in the next steamer for New Jersey, (Mr. H. will excuse us for being a little personal;) after landing on that "foreign shore," we should not have to walk many miles to demonstrate, that as good seedling Verbenas are raised there as in Europe, and that they are *not* as much appreciated. What, then, shall we do? stop raising seedlings? By no means. Go on raising seedlings, and at the same time import all the best European varieties. The seedling will doubtless by-and-by get a fair chance for competition. What is here said of flowers is *not* true of fruits, and for a very similar reason. We desire to see the public mind in such a healthy condition, horticulturally speaking, that no seedling or novelty, either fruit or flower, would be bought until properly endorsed by some competent authority. But we do not purpose "arguing" this subject at present; it is in good hands, and the real facts will, in the end, no doubt be assigned their true position.—Ed.]

GRAFTING THE GRAPE.

BY EL MEDICO.

The February Horticulturist honors me with a question which I must have the politeness to answer, although I have nothing original or interesting, as yet, to say on the subject of grape-grafting. You ask, whether it is desirable to have that operation illustrated by cuts. My answer is, yes, by all means; and so, I think, would nineteen out of twenty of your readers say, if they had only the chance to cast their ballots. Let us have the pictures; I am still very fond of them, although all my hair is not precisely of the same color it once was. They aid the apprehension, and are the next best thing to seeing the operation itself. Verbal descriptions of any process, however minute they may be, often convey different ideas to different minds. This a good drawing can not do. You have still time to set us all to work, in the spring, in the right way.

I have the pleasure of Dr. Grant's acquaintance, and for that reason his article in your last number was read with more than ordinary satisfaction. His views of the principles of grape-grafting had all been suggested to my mind before. They are undoubtedly true, and proceed from a correct understanding of vegetable physiology. But the clearest knowledge of the principles of a science may be attended with defective practice; and, of all who would be grafters, only a favored few will be masters of the theory. What the great mass of horticulturists need is the knowledge of a simple, practical method of grafting, always attended with such an amount of success as will encourage them to risk an operation on a good vine in order to get a better. That is what all intelligent farmers are constantly doing with their apples and pears; and nothing more than what they would as surely do with their grapes, if they knew how. And to teach them to do it is the quickest and surest way to educate their palates, and convert them into eager purchasers of better kinds, on their own roots, from those who have them to dispose of.

Dr. Grant mixes encouragement with discouragement very accurately—"'alf and 'alf." He tells us how to do a good thing, and then tells us not to do it. I feel like drawing my rusty scalpel upon him for filling me with zeal and hope in the first place, and then, while the ground is covered with snow, giving me a shower-bath of every cold water. My system feels, as yet, but a feeble reaction, and I fear the glow of vigorous health will not fully return after such thorough hydropathic treatment. I had hoped the doctor was a regular practitioner, like myself, and loved to administer cordials and placebos. The sum of his objections to grafting is, that a grafted vine is not as durable as one on its own roots. Admitted: and will not the same objection apply to an old apple or pear-tree that has been grafted? His argument for a vine on its own roots is, that it takes but three years to bring it into a good bearing state. As to *time*, the argument is all in favor of an old vine successfully grafted, which by the operation is retarded but one year. A gain of two years is a great gain to all men, who know that "man that is born of woman" is at least "of few days," if happily not "full of trouble." And how much greater still is the gain to him whose table is surrounded with little grape-hungry mouths, whose impatience seems to augment the interval between beef-soup and Delaware Grapes into an eternity.

Let us suppose another very common case: A suburban resident has a row of

Isabellas in his very small garden. He knows that to take them up, and trench, and enrich the border for a new kind and generation of grapes is an expensive operation. But that is not the worst of it, by a great deal. He knows that even should the tender roots of young vines take well in ground before occupied by grapes, he must wait three years before he can fill his fruit-basket with unbought grapes, unless by paying a "fancy" price he buys large layers, and then he may reduce his term of expectancy (or "hope deferred") to two years.

Again: A man has a vineyard of one acre, which supplies himself and family abundantly with wine and fruit, and yields a handsome profit besides. To trench and set it in vines it originally cost him $300 in money, and three years of impatient expectation, not unattended with less than $—— in toil of hand and sweat of brow. He is 50 years old, but not without ambition. His Isabellas mildew, are uncertain, and of slow sale in the market. He wants his acre in better vines. The idea of extirpating, retrenching, replanting, and beginning *de novo*, is out of the question. What then? Why, he will graft the vines as fast as his limited means will enable him to obtain the eyes. And that is what those who understand it are now doing at Cincinnati. True, the vines may not last more than fifty, or forty, or twenty, or even ten years; but that's enough.

And thus, I might present many other supposed cases, to show the very great importance of the art of grafting the grape.

A very extensive dealer in grape-vines, of Rochester, N. Y., (vide *Gardener's Monthly*,) propagates the vine very largely by grafting a single eye upon a root not more than two inches long. The plants are ready for market the succeeding fall; and, I presume, are twice as large and vigorous as they would have been unassisted by the root. The idea is plausible in theory, and will doubtless be eminently successful in practice. I am inclined to think that all feeble growers should be grown in that way. The Rebecca, for example, (one of the best of grapes,) is comparatively worthless on its own roots, from sheer attenuation and debility. I have seen but one vine whose annual crop would detain a five-year-old boy from his play more than five minutes. When grafted I have seen them grow with sufficient vigor. One more suggestion in this connection, and I have done, viz: to use "Longworth's Great Grower" as an invariable stock upon which to propagate all feeble growers. I saw this vine in Mr. Longworth's garden, and was amazed at the luxuriance of its growth. I would describe the monster, if I thought your confidence in me could stand such a test; but as I do not wish you to take me for a veritable descendant of Baron Munchausen, I will hold my pen, and merely add that Mr. Longworth has himself described the vine, in a letter to the Cincinnati Horticultural Society, which may have been published in their proceedings.

[We extend you a hearty greeting, El Medico. You may at times wield a "rusty scalpel," but always a polished pen. Your "chapter of failures" has already awakened a wide-spread sympathy, in which we hope you and many of our readers have found some comfort. We gather from this that a large number of individuals are in want of just such knowledge as you called for, and that in this respect you are emphatically a "representative man." We have prepared the illustrations and placed them in the engraver's hands, and if finished in time you shall have them in the present number. The root grafting you allude to is now common among propagators, but is not what you want; we shall explain it, however. Mr. Longworth's "Great Grower" we presume is the one, the fruit of which he sent us some four or five years since.—Ed.]

THE PRACTICAL PAPERS.—I. HOW TO SET OUT A TREE.

BY OLAPOD QUILL, (AN OLD CONTRIBUTOR.)

As the season of the year so favorable to the transplanting of trees is drawing near, a few pratical hints derived from *experimental theory* may not be without profit to the interested. We frequently have the inquiry made of us by our friends, "How do you transplant a tree to make it live?" Now, in the first place, it is very easy indeed to make a tree live, if you understand how to do it. Many persons imagine that there is but little difference between planting a tree or a stake, until they are taught two or three lessons of disappointment. A case in point will show the necessity of a knowledge of the work to be indispensable, to insure complete success. A farmer, not more than thirty miles from Boston, had an orchard to plant out with trees, and, wishing to have them live and thrive well, he employed the services of an experienced gardener to transplant his trees.

Very well: the gardener set out on the first day eight or ten trees only out of the one hundred to be planted. The owner of the trees was sadly disappointed at nightfall in finding "but ten trees out of the lot set out," and more so at the price asked by the gardener (two dollars per day) for his work. He "paid him off," and concluded he and Jonathan, his hired man, would set out the rest. He did so, and mark the result. Ten years afterward the same man was at work in the same field, when a gentleman riding past stopped to examine the trees. After attentively looking at them for a few moments, he asked of the owner why he did not plant out his whole field at the time he did the row of trees at the wall, all the others in the orchard being of a small, dwarfish appearance. His answer was, "They were all planted at the same time; but I hired a gardener to plant out these ten, which are so large, and the rest I put out myself, because I thought he was too slow, and charged too much; but if I had given him two dollars a day for ten days, I should have richly received the benefit, for of these ten trees any one of them would have more than repaid the whole expense." The looker-on smiled as he observed, "I am the gardener who set them out for you, and I thought you would find, sooner or later, that it required more knowledge to plant out an apple-tree than it did to set out a post."

The following simple rules have been successfully followed by myself for quite a number of years, and I think can be adhered to with a good degree of certainty as to favorable results.

First, the hole destined to receive the tree should be made (for a small tree, say from one inch to one-half inch diameter) three feet in diameter, or sufficiently broad in all cases to receive, without cramming or bending, all the rootlets of the tree. Next, place the tree in the same position as when removed, but not too deep. Many inexperienced persons lose their trees from too *deep setting*. A tree when transplanted should set *no lower* in the earth than it did in its original position before removed. If any of the branches or roots are bruised or lacerated, pare them smoothly, or shorten them with a sharp knife. Use good compost as a manure in setting out, and fill in the finely pulverized mould closely about the roots. To make sure there is no hollow about the roots, it is best to use the hand to introduce the fine earth round the small "fibre roots," gently shaking the tree until it becomes quite firm of itself. Any neglect at this stage of the transplanting is an error which will be sure to be seen in the after growth of the tree.

As a general thing, I have not used *water* in transplanting trees, and do not recommend its use except when setting out a large tree; then I use water, say one pailful, when the tree is partly set out or the hole a little more than half filled with earth. I wait until the water has "dried in" or become absorbed, before filling the hole up, but never make a "*mud pudding*," by throwing in the earth immediately after the water.

In small-sized trees I prefer muck, litter, or short sedge, as a retainer of moisture, to quantities of water. I have found, by experience, that too frequent watering applied to the surface tends to harden or bake the earth, and proves injurious to the tree. In frosty locations, if you fear a lifting of the tree, a small mound raised in the fall around the stem of the tree will remedy this evil. Remember to remove the same in the spring. In very rocky locations, it is best to dig out, say one or two cart-loads of the soil, and remove it, filling its place with rich garden mould; and our word for it, you will be the gainer thereby. By attending carefully to the above general hints, you can have not only a pleasant shade tree, but a profitable bearer; and if so, you will be of our mind, so far as fruit trees are concerned, that when the tree is *transplanted well* "it is DONE, if well done;" if not, why you will soon find it out.

[In our friend "Quill" we welcome back to the HORTICULTURIST one who often wrote for it in the time of Mr. Downing. His articles, as indicated by the title, will be entirely practical, and correspondingly valuable.—ED.]

WATER CRESS.

BY BROOKLYN.

THIS salad is easily raised wherever there is a well or pump. Take seven flooring boards, and make a tank four feet wide and one deep; pitch the seams, and sink in the earth; fill with good soil, and set plants. Run in all spilt water.

I have raised it in this way for three years, a bed of the above size furnishing an ample supply. The last two years I sashed it, and cut from 1st of May until the middle of December. It should have a warm aspect, to get it in bearing early, but is better shaded by an arbor of beans, squash, etc., in July and August, or the sun is apt to cook it.

["Brooklyn" has a peculiarly practical mind. He wastes no blows; but hits the nail right on the head till it is driven home, and then stops. A few more light blows by way of finish would seem to be all that is needed to make every thing "right and tight." The above is a very simple and practicable mode of growing cress, and puts it within the reach of numbers who might otherwise be deprived of it. It is one of our best salads.—ED.]

WHAT IS IT?

BY G. H. B.

Mr. Editor:—It has been a source of much reflection to me, what the cause may be that, in all the vast tract of country from the Rocky Mountains to the Atlantic coast, the true wine grape (*Vitis vinifera*) will not grow, as it is perhaps the only plant that will accommodate itself to any clime and soil elsewhere all over the world. Even in parts where the summers are too short to ripen its fruit, the plant itself will *grow* healthy and live, which is not the case here.

Immediately west of the Rocky Mountains, in California, the vine does well, and cuttings sent there and planted in the open air have borne fruit the second season. A little south of Florida, also, at St. Croix, there is a beautiful vineyard on the mountain, which produces most delicious fruit; and a gentleman here who lived a number of years at St. Thomas, told me that he had a Chasselas Blanc there in his garden which bore annually four crops for sixteen years, after which time it was exhausted and died. Even near the equator, in a country where a pair of blackened boots will be covered with mould in thirty-six hours, I have found at Paramaribo, in the garden of Mr. Trask, the American consul, the Chasselas in a healthy state, and ripening its fruit well. But, strange to say, I had a vine of our Alexander, or Schuylkill Muscatel, as it is often called, and planted it there, which, during the rainy season, became perfectly covered with moss, and the Chasselas remained perfectly clean. The locality of both these vines was alike.

In my opinion, the cause of our non-success with the foreign grape-vine in the open air, lies in the peculiarity of our atmosphere during the summer season; it has something singularly oppressive and sultry, *even in the shade*, which we do not find elsewhere. It is our summer, not the winter, which kills the foreign grape-vine here. In California, in the West Indies, in Guiana, we find it hot in the sun, but *always pleasant in the shade*. Here is the difference; but what the real cause of the difference is, we shall not soon be able to discover.

[A mystery surrounds this subject, and that mystery gives it a peculiar interest. The results are sufficiently uniform and apparent; the cause, it must be acknowledged, is not well understood. The facts are stated correctly by Mr. B. There can be little doubt, we think, that the wine grape is constitutionally unfitted to endure the extreme and sudden changes of our climate. It is not the winter's cold or the summer's heat that proves fatal, but excessive variations of temperature. We shall have occasion soon to discuss this whole subject.—Ed.]

AMERICAN SHADE TREES.—NO. II.

BY C. N. BEMENT.

This family of trees are highly ornamental, and their cultivation in the park, lawn, and road-side should be much extended. Whether we regard the beauty of their flowers and opening in early spring, or the red fruits in the beginning of summer, or their red and orange-colored foliage in autumn, they deserve to be highly considered, as they are, one of the most ornamental of hardy trees.

The Red Maple, called also the White Maple, the Swamp Maple, and the

Scarlet Maple, is a tree of middling size, growing abundantly in swampy low grounds, in most parts of the Middle States. "Its flowers, which appear in April or May, before the leaves, are of a bright crimson, or scarlet, and make a striking appearance in whorls or pairs, of sessile, crowned bunches, on the scarlet or purple branches. The flowers are of two or three kinds, found on different trees. The surface of the leaves is liable to be variegated with lines of scarlet, or crimson, or orange, at every season of the year. This occasionally happens to all the leaves on a tree, even in middle of summer, forming a gorgeous contrast with the green of the rest of the forest. The leaves begin to change their color in August, and are usually gone by the first of November."

The observation of a single year of the varying colors of the Red Maples, would be sufficient to disprove the common theory, that the colors of the leaves in autumn are dependent on the frosts. It is not an uncommon thing to see a single tree in a forest of maples turning to a crimson or scarlet in June or August, while all other trees remain green. It is not uncommon to see a simple brilliantly colored branch showing itself on a verdant tree; or a few scarlet leaves exhibit the tints in October, while all the rest of the tree and wood has the soft greens of June.

A Red Maple is usually a low, round-headed tree, of less beauty of shape than either of the other species. But the great variety of rich hues which it assumes, earlier in the fall than any other tree, gives it a conspicuous place in our many-colored autumnal landscape.

The Red Maple bears transplanting remarkably well, is of rapid growth, young trees increasing in diameter from a fourth to two-thirds of an inch in a single year. It may be made to grow in any soil not too dry; still it flourishes best and attains its largest size in rich swampy land.

The White Maple.—From the Red Maple, with which it is sometimes confounded, it may be easily distinguished by the silvery whiteness of the under surface of the leaves, and by the color of the spray. The flowers come out in April, before the leaves. The beauty of the finely cut foliage, the contrast between the rich green of the upper surface of the leaves and the silver color of the lower, and the magnificent spread of the limbs of the White Maple, recommend it as an ornamental lawn tree; and as such it has been extensively introduced in our lawns, parks, towns, villages, and cities.

The Rock Maple is a well-known native tree, valuable both for the production of sugar, and for its wood; its stately growth, and fine form and foliage, make it desirable as an ornamental and shade tree. It is easily distinguished from the other maples by the roundness of the notch between the lobes of the leaves, which in others is somewhat acute. This tree, which is also called Hard Maple, from the character of its wood, and Sugar Maple, from the character of its sap, is in all respects the most remarkable of the family. When young it is a beautiful, neat, and shapely tree, with a rich, full, leafy head, of a great variety of form, enlarging upward and forming a broad mass above, or tapering at each extremity and full in the middle, supported by an erect, smooth, agreeably clouded column, with a clean bark, and a cheerful appearance of vigor. In open pastures, on moist hills and mountain sides, it forms a broad pyramidal top, the branches coming out horizontally or with a graceful upward curvature from a point eight or ten feet from the ground. On the plain, in deep, moist, clayey soils, the top assumes the shape of a massive cylindrical column of great height, often seventy or eighty feet.

The leaves are bright green and smooth above, pale glaucous, and at first downy; afterwards, smooth beneath. On different trees they differ strikingly in

their color, being sometimes of a dark and sometimes of a light green on their upper surface. In autumn they become, often before the first touch of the frost, of a splendid orange or gold, sometimes of a brighter scarlet or crimson color, each tree commonly retaining, from year to year, the same color or colors, and differing somewhat from every other.

Acacia Tree.—This is a well-known American tree, better or more commonly known as the Locust. It grows very rapidly, in the early stages of its progress, so that in a few years, from seeds, plants of eight and ten feet high may be obtained. It is not uncommon to see shoots of this tree eight or ten feet high in one season. "The branches are furnished with very strong crooked thorns;' the leaves are winged with eight or ten pairs of leaflets, egg-oblong, bright green, entire, and without foot-stalks. The flowers come out in the branches, in pretty long bunches, hanging down like those of the Laburnum. Each flower grows on a slender foot-stalk, smelling very sweet." The flowers are of a white color, and it blooms in June; and when the tree is in full bloom it makes a handsome appearance, and perfumes the whole air around.

The Acacia tree seems happily adapted to ornamental planting. Whether as a single tree upon the grass, feathering to the ground line, or as a standard in the shrubbery, towering above a monotonous mass of sombre evergreens, the Acacia has great charms for us, and may justly be called a graceful tree; and although its loose, light, and pleasing foliage admits the light, and seems to harmonize so delightfully with the polished lawn, or the highly cultivated shrubbery, yet we should like much to see the Acacia tree planted in the woods wherever forest timber is an object of attention. Its shade encourages the growth of grass. The Acacia trees, in their rapidity of growth, are exceeded only by a few of the poplar and willow tribes.

The Horse Chestnut.—Botanists describe only two species of this tree in the United States, namely, the large Yellow, and Ohio Buckeye or Horse Chestnut.

The value of the American Horse Chestnut consists mainly in the beauty of its abundant, precocious, and beautiful foliage and flowers, qualities which bring it into great request as an ornamental tree. In beauty the yellow variety is considered inferior to that magnificent tree, the Ohio Horse Chestnut, which is not a native of any of the Atlantic States, where, however, it is a favorite ornamental tree. The ordinary stature of the American Horse Chestnut is ten or twelve feet, but in some situations it sometimes equals thirty or thirty-five feet in height, and twelve or fifteen inches in diameter.

The foliage of this tree appears very early in spring, being very quickly followed by its flowers, which almost cover the tree in white bunches, making a very brilliant appearance. The fruit is of the same color with that of the foreign Horse Chestnut, and about the size; it is contained in fleshy, prickly capsules, and is ripe the beginning of autumn.

The White Wood or Tulip Tree.—This tree, the only one of its genus, is found in great abundance in the Middle States, where, on the rich woodlands in the alluvials bordering on large streams, it attains a growth which makes it the most majestic tree of the American forest. Trees are frequently found from one hundred to one hundred and fifty feet in height, and six or eight feet in diameter, the trunk being sometimes sixty or eighty feet, perfectly straight, and without knot or limb. This stately, magnificent tree, when its wide-spreading branches at the summit are loaded in May with its Tulip flowers, is a splendid sight, and a most valuable acquisition.

"When this tree first bloomed in England, the common people heard that there

was an enormous American tree covered with Tulips, and they opened their eyes in wonderment at the information. It was just after the Tulip mania in Holland and elsewhere. The excitement was great, and *Liriodendron tulipifera* was all the fashion. There can scarcely be a handsomer tree, and yet it is not so frequently planted as it deserves to be." It is a good shade tree, but it attains a large size; too large for very small grounds. It is also difficult to remove, having a tap-root. Procure it not from the woods, whence it almost always fails, but from a reliable and conscientious nurseryman, whom you can believe when he tells you he has removed it at least once.

The Linden or Lime Tree.—This beautiful shade tree is more commonly known in this country by the name of *Basswood.* It is a lofty, rapidly-growing, handsome, upright, and regular-shaped tree; much esteemed, and well suited for planting in avenues, lawns, and parks; and is to be recommended where the object is to obtain a great mass of foliage and a deep shade. No other native tree surpasses it in the abundance of its foliage. Its head forms a fine pyramid of verdure, while its lower branches, when planted singly on a lawn, and allowed to develop itself on every side, sweep the ground, and curve upward in the most pleasing form. The pleasant odor of its flowers is an additional recommendation, as well as its free-growing and handsome leaves. The flowers are brown on long stalks, and are pendulous from the branches. It has the advantage of being easily transplanted, and growing readily in almost any soil, though it flourishes best on a rich, rather moist loam.

As an ornamental tree in picturesque gardening, the Linden is worth cultivating, as it ranks in the first class in point of magnitude, frequently attaining a height of eighty or ninety feet, and a trunk corresponding in circumference to such an altitude.

These qualities adapt it admirably for being used as a screen or as a shelter to protect tender trees against the wind. Its growth is very rapid; it bears pruning almost to any extent, and may be trained to grow as tall, or as low and bushy, as may be required.

The Hickory is also a very fine ornamental tree, that should be much more often seen about our houses and public grounds. The difficulty of transplanting it is probably the principal reason why it is not more often used for such purposes. It grows very rapidly from the seed, and a supply could very soon be obtained by planting the nuts at the places where the trees are to grow.

The Oak, the monarch and glory of our forest trees, as an ornamental tree, standing alone in a park or lawn, has few superiors. As an ornamental object we consider the oak the most varied in expression, the most beautiful, grand, majestic, and picturesque of all deciduous trees. Its beauty consists in the abundance and luxuriance of its foliage. It is beautiful in every stage of its growth; at first light, slender, delicate, and waving; at last broad, massive, and grand, but always graceful. The enormous size and the extreme old age to which it attains in a favorable situation, the great space of ground that it covers with its branches, and the strength and hardihood of the tree, all contribute to stamp it with the character of dignity and grandeur beyond any other compeer of the forest. When young, its fine foliage and its thrifty form render it a beautiful tree. But it is not until the Oak has attained considerable size that it displays its true character, and only when at an age that would terminate the existence of most other trees that it exhibits all its magnificence. When standing in a situation where it is somewhat protected, and has room freely to expand its limbs, it will in every year improve in beauty and magnificence, for a time equal at least to five of

the generations of man. There are Oaks in Britain which are believed to have been old trees at the time of William the Conqueror. The famous Charter Oak, the valued relic of the original forests, so noted in song and history, but more especially interesting as the tree in which the old British Charter of Connecticut was secreted, was supposed, at the time it was prostrated, in a storm, a few years since, to be over 2,000 years old. Proudly it stood, and, when tottering with age, and reduced to a mere shell of a few inches by the steady inroads of time itself, it still clung with fondness to the lovely spot on which it had witnessed the decay and downfall of many of its associates—the path and the bloody wars of the red man, and the red man's decay.

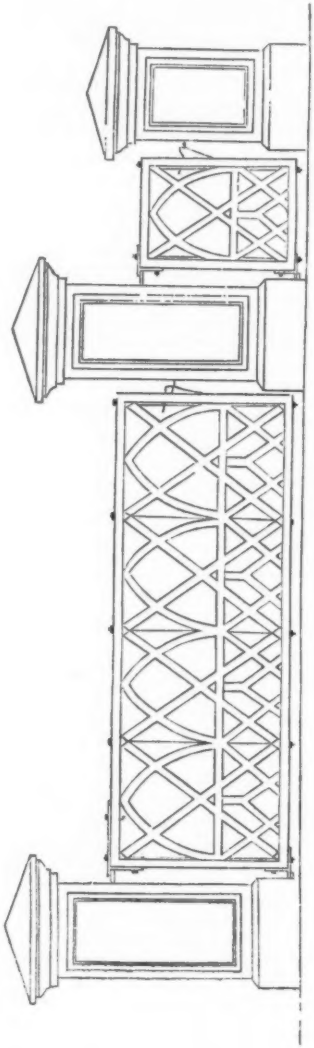
LANDSCAPE ADORNMENT.—No. X. "GATES."

BY GEO. E. WOODWARD, ARCHITECT AND LANDSCAPE GARDENER,

29 BROADWAY, NEW YORK.

The introduction of the old and well-established principles of the truss in the design and construction of gates, is an improvement which effectually obviates all tendency to sag, and at the same time furnishes the remedy for it should such a thing occur. In roofs of great span, and in bridges, the truss is found to be the best form of construction known to resist an equal or unequal load, and its merits have been well tested. The application of a bridge truss to a gate is a suggestion of our own, no use of it ever having been made before in this manner that has come to our knowledge; and having by practical experiments ascertained the entire fitness of the truss for the construction of gates of every class, from the rustic farm gate of cedar poles, to park gates of a massive and ornamental character, we have no hesitation in stating that it presents the best united form of the three leading principles that are desirable in gate construction, viz: beauty, strength, and economy. A careless glance at the design given with this article would lead many to suppose that this principle is a common every-day matter, the use of braces and counter-braces being recognized in nearly every style of gate. As we have studied the subject of gate construction theoretically and practically, and made experimental tests of the strength and permanence of all the most approved principles in use, we speak guardedly as well as confidently when we say that the true principle of the truss is not embraced in any form of gate construction that has yet been adopted. We have had occasion to examine one or two in which some of its characteristics have been used, and they have proved to be of a superior character.

There is nothing new in the principle of the truss, and its strength is an admitted fact. In applying it in the construction of gates we adopt the best known form of strength for that purpose, and one which, in all conditions of shrinkage, decay, or abuse, embraces within itself the remedy that shall effectually overcome the objectionable results from these causes. The enormous tensile strength of iron being brought in opposition with the unyielding power of wood, has the effect of making a truss very rigid in its character. In the engraving the principle of the truss is easily traced, being two braces between each perpendicular



THE WOODWARD GATE.

iron rod, running from the lower rail to the upper rail, and crossing each other in the centre. All else is for the purpose of ornament and protection. Should the gate, from any cause whatever, sag down, it can be easily brought back by unscrewing the rods and placing a thin strip of wood or sheet lead under the foot of those braces that run forward toward the upper rail.

There are no nails required to make these gates, except to attach or secure ornamental work; no mortises are necessary but those in each corner of the gate frame. All the stuff is two by four inches, halved together, wherever they cross, and any piece can be taken out and replaced without injury to any part of the gate. The braces are all of equal length, and are got out with square ends, the bevel being made on the triangular foot block at the head and foot of each brace; they are held tightly in their place by compression, which can be controlled to the amount of several tons. No nails or mortises have any thing like the power or security.

We call particular attention to the hinge shown, and the manner of applying it, which we believe to be new. The iron bolt which passes through the gate at the heel post passes through both upper and lower hinge, and makes hinge and gate, as it were, one thing only. Three carriage-bolts in addition are all that are necessary to completely attach the hinges, and the result is a stronger and more durable hinge at half the cost of those in common use.

We believe the truss gate contains the remedy for all objections urged against the common forms. It can be constructed for about one-third less money than any other style, and is adapted equally as well for a cheap farm gate as for ornamental gates of country seats and parks.

The variety in designs afforded by first drawing the principle is almost unlimited. The truss, the double truss, single braces, interlaced braces, lattice, etc., are but different changes of the plan. In connection with these we can add designs not only peculiar to this style of gate, but designs of any character whatever can easily be adapted to it; and if desirable, the truss principle can be so woven in as not to be recognized except on close inspection. We, however, do not consider it any evidence of beauty or taste to hide the indications of strength; that gate which does not proclaim its power lacks a quality for which a graceful and well-proportioned ornament is no compensation. The most charming design is but a silly display if there is no exhibition of its usefulness.

A gate can be, and should be made, a very pretty feature in the embellishment of a country home, and in some measure should express an insight to the taste displayed in the adornment of the grounds. Its plan of construction, beauty of design, or practical utility, should attract attention in preference to elaborate workmanship, costly columns, etc.; the preference should be in this, as well as in all other departments of landscape art, to display the evidences of a refined and cultivated taste instead of the evidences of wealth, and the estimate of value should be more in proportion to beauty than cost.

The true lover of country life will discard an iron gate, not as bad taste exactly, but as inappropriate taste, it being more in keeping with the appointments of a town establishment than in the list of rural embellishments. A four story freestone front harmonizes equally as well with the beautiful or picturesque.

We shall, in future articles, illustrate the use of the truss principle in rustic work. In this, nails are of no permanent value, and rustic gates, fences, seats, etc., tumble to pieces as soon as they get thoroughly seasoned. The iron bolts in a truss, which add but a trifle to first cost over nails, render rustic work in that form as durable as the materials of which they are composed.

We invite the gate-building community to make free use of the hint here given; our reward is sufficient to know that in this new application of an old principle, there is a successful illustration of science and economy.

[We can not forego the pleasure of adding a word of approval in regard to these gates. They combine the elements of simplicity, strength, and beauty in an eminent degree. The principle is susceptible of so many styles of ornamentation, that it may be adapted to any kind of architecture. This Mr. Woodward will illustrate in succeeding articles. Did it ever occur to you, Mr. Woodward, that a good stiff, durable ornamental *fence* might be got up in the same way?—Ed.]

THE ROSE-SLUG AGAIN.

BY AN OLD STANDARD.

Dear Editor:—I have just noticed an article in your February number, recommending water, "mechanically applied," as a remedy for the Rose-Slug, and which you nail with scripture as being a remedy "without money and without price." Of course you refer to the water portion, overlooking the expense of a "box mounted on a four-wheeled carriage, and a force-pump attached, with rubber hose eight or ten feet in length."

I have great faith in water as well as in Veitch, who is a man of large practical experience, and I would be the last in the world to throw cold water on any suggestion of his; but as these said appliances may not be easily procurable by many who delight in cultivating the Queen of Summer on a small scale, like myself, and knowing that you can not have too many *effectual* remedies suitable to the various means and necessities of your numerous readers, I beg to suggest *another*, which to you and the profession generally can not be *new*, but which may be of service to some of my own class—amateurs.

There is no doubt as to the good effect of water applied as directed by friend Veitch, but with the necessary accompaniments it is *not cheap*, to say nothing of two persons being necessary to work it. "Gishurst Compound" is also good and effectual, and also *not cheap;* "on the contrary, quite the reverse," as well as dangerous if injudiciously applied.

My remedy is neither dear nor dangerous; is easily and quickly applied, a few applications only being sufficient; whereas, the water-system is a tri-weekly labor of two months' duration.

Your inquiring correspondent of last year says, "Tobacco, and smoke, and sulphur, and lime, and plaster, and woman's tears, and men's imprecations are alike harmless to exorcise those miscreants which plague mankind;" but, I ask, in what shape or form was tobacco used? Certainly not in that of *snuff, my simple remedy, which I have never found to fail.* Not such as is sold by tobacconists to those who are led by the nose, but the *refuse* or sweepings of the snuff-mill: equally pungent it is, and much cheaper. For twenty-five cents I buy from Lorillard more than sufficient for a season, and I grow about a hundred plants. I use a common dredger or pepper-box, about three inches in diameter, giving the first dusting, just enough to slightly color the foliage, as it opens, and always early in

the morning when *bathed in dew*. Unlike water, it remains, keeping guard against the enemy till washed off by heavy dew or rain, when it may be repeated.

From the first application till the flower-buds begin to burst—when it becomes no longer needful—I am outside the mark when I say that I have not applied it over six times any one season; *four*, I believe, being nearer the truth. So you see the trouble is little, the expense trifling, and the result all that can be desired.

Whatever the *pest* may be, slug, thrip, or red spider, that so utterly destroys the foliage, and consequently the bloom, I know not; but, be it either or all of them, I now consider the evil perfectly under control—the victory complete.

There is, however, still another enemy to look after. Notwithstanding these pungent dustings, I have, but only in very few instances, found "*a worm in the bud*." Whether it is that I had missed dusting the bud attacked, or that the caterpillar—for such it is—can stomach the weed, deponent saith not. I only state the fact to show the need for keeping an eye on the buds.

To those who adopt this remedy I promise healthy plants throughout the season, being fully confident of the enemy beating a hasty retreat the moment you are found to be "*up to snuff*."

["Of course," Mr. Standard, we only referred to the price of the remedy itself, leaving each one to count the cost of applying it. Not a few already have the box and hose, and to such the application would be cheap enough. But that does not in the least detract from the merit and cheapness of your remedy, which we can well conceive to be a first-rate one; indeed, we know it to be so; but how many will apply it *before* the slug has put its mark on each individual leaf? Watch the first appearance of the enemy, and take him, like time, by the forelock.—Ed.]

PROPAGATION OF THE GRAPE-VINE FROM CUTTINGS OF GREEN YOUNG SHOOTS.

BY HORTICOLA.

Mr. Ferdinand Rubens, the author of a very valuable work on the Grape-vine, referred to by Dr. C. W. Grant in the fourth edition of his catalogue, communicates to a friend of his in this country the observation made by *Rev. Mr. Rank*, of Alexandria, in Poland, that cuttings taken from the vine towards the end of June, grow very readily. As this observation is sufficiently interesting to those engaged in the culture of the vine, we translate from *Mr. Rubens's* letter the following extract:

"In the middle of September I received a letter from Rev. Mr. Rank, at Alexandria, in Poland. As that letter will interest you, I transcribe a part of it. He says, 'Toward the twentieth of June, just before I set out for a watering-place, I transplanted a number of grape-vines with perfect success, so that the truth of your assertion, that this may safely be done in summer, was fully proved. I made, besides, the discovery not mentioned in your book, that cuttings from young green shoots, when carefully planted and treated, grow very readily. In transplanting the old vines, I collected the young shoots, which were about three feet long, and planted them in holes two feet deep, cutting off about six inches from their tops, and watered them liberally. The leaves, of course, had been removed,

and they were planted so deep, that two eyes only remained above ground. About a week after planting they commenced growing. Not a single one out of fifty which I planted has failed.'"

It happens not unfrequently during the summer, that young, vigorous shoots are damaged or broken off by violent winds or other accidents; they may be used for propagation instead of being thrown away.

[The above, from a distinguished scholar, as well as an experienced amateur horticulturist, will be read with peculiar interest. Many years ago, in experimenting with cuttings, we succeeded in striking the ends of green shoots of the grape; and now, by the use of bottom heat, we can root even the laterals with almost as much ease as a Pelargonium. We have often explained the method to friends, and some of them pursue it in their regular course of propagation. The plants thus made, however, are not as strong as those from single eyes. The mode described in Horticola's article, of taking a green shoot three feet long, and planting it in the open air, is a novel one, and will attract attention. The reader will not fail to observe that in about a week the cuttings began to grow, and that not one of the fifty failed: a success very remarkable. No doubt scores will attempt it during the coming season, but they should be careful not to remove from their vines shoots which can not be spared. Let us suppose, with Horticola, that a shoot is accidentally broken off; this will generally be at the point of junction with the old wood. Pare off the lower end square and smooth, and remove the leaves; cut the upper end off an inch above the first tolerably developed bud, and plant as described in Mr. Rubens's letter. We should put the cutting in a light, sandy soil, water freely, and shade from the sun till the cutting gets well established. The reader must bear in mind that experiments like this have the chances against them, under the influence of our hot sun and dry air. Then, too, we must consider the chances of ripening the wood before winter sets in. We hope, however, the reader will not be deterred from making the experiment, for while digging in this mine he may chance to strike a vein of the purest gold. The reader will not fail to observe, also, another interesting fact in Horticola's article, that vines may be successfully transplanted in summer. It may not often be necessary to do this, but it is well to know that it may be done when occasion demands it. We may as well say, however, that transplanting can not be done in this country with the same success that attends the operation in Europe; and this is especially true in regard to the size of the tree or vine, and the season at which it is done. This fact is getting daily to be better understood. We are always glad, however, to have experiments tried, in order to ascertain where our stopping point begins. Some may lose by such experiments, but we are all gainers in the end.—Ed.]

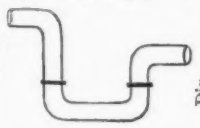
ECONOMY AND SIMPLICITY OF HOT WATER FOR HEATING GREENHOUSES.

BY R. BUIST, PHILADELPHIA.

We have used hot water in our establishment the past twenty-three years for heating our greenhouse erections,—at first, with great caution and some small fear; and we consider it economy wherever there is an amount of 2,000 square

feet of glass to heat. We have seven of Burbridge and Healy's double cylinder ribbed boilers in operation; they cost (made in Philadelphia) from $35 to $45 each, and with Sylvester register doors, bars, and fixings, about $20 additional. The greatest capacity we have put any of that kind of boilers to is in four houses, each 55 feet long and 18 wide, and kept at a temperature of from 45° to 75°, as required, using 600 feet of four-inch pipe for the purpose, and find it fully sufficient. We find no difficulty in filling circulation, or any arrangement we undertake. We are, however, particular to have an air-pipe at the highest point, and also fill the boiler and pipes at the extreme end, having found at our early adventure that there was an objection to the arrangement for filling at the boiler, causing frequent eruptions of hot water from the boiler, thereby impeding or entirely defeating circulation. We prefer having the extreme end of the pipes about 12 to 18 inches higher than the boiler, and all the extremities must be on the same level, or the highest end will always have the hottest water. We have more than once heard it said "something wrong with the pipes," but have generally found it "something wrong" with the attendant, which was readily discovered by feeling the pipes on the upper surface backward and forward till we came to heat; then on the under surface, which if warmer than the upper, water was certainly deficient; but if the cold was only in spots, with a cracking noise in the pipes, air had got into them, which is a very rare occurrence, and caused by the pipes being out of an even inclination. The air-pipe must be occasionally examined with a wire or rod to keep it clear of incrustations.

All the boilers should have a tap at their lowest part to empty them when required. We have them, however, that have not been emptied the past five years. We find water perfectly ductile in its adaptation. You may dip the pipes to almost any accommodation, observing the following rules. If you wish to dip the *flow*-pipe at any place, the dip must be shorter than the rise, thus:



If in the *return*-pipe, the dip must be longer than the rise. Wherever these dips occur, however, there must be an air-tube. It is all important for success in every heating operation, that simplicity, cheapness, and durability, with economy of fuel, should be combined. We therefore look for a cheap, efficient boiler and four-inch pipes at 25 to 30 cents per lineal foot. The "one boiler system," as it is called, has been adopted very successfully in some European establishments, while others have failed from deficiency in working-knowledge. We presume, however, that there are none more effective than that of Thos. Winan, Esq., of Baltimore, where ten or twelve greenhouses, and nearly as many graperies, with mansion, carriage-houses, etc., are all completely heated by one tubular boiler, with the greatest simplicity in its manipulations.

[The interest of the "Boiler Question" is by no means confined to this continent; it is at present discussed in the English journals a good deal more than in ours. The "one boiler system," alluded to by Mr. Buist, is said to be most efficient there. The "Polmaise" is being discussed again, and a recent modification of it by Mr. Kidd is said to be a great improvement; but this modification is nothing more than the hot air furnace common in dwelling-houses all over the United States. Mr. Winan's boiler must be a powerful one, and we should have been glad if Mr. Buist had told us who it was made by. Making a "dip" in a pipe, as illustrated by Mr. Buist, is a point that has been warmly discussed, but we know that it can be done without detriment to the circulation of the water.

We prefer, however, to make the dip and rise at an angle of about 45° instead of a right angle; but it can be done either way. We do not make the statement as a matter of opinion, but as a matter of fact. We hope to have the pleasure of hearing from Mr. Buist again. It is always a gratification to see in the pages of the HORTICULTURIST the names of its old friends.—ED.]

THE CURCULIO.

BY DR. I. P. TRIMBLE, NEWARK, N. J.

THE past has been a season of fruit: all kinds have been in unusual abundance. Cherries, Pears, Apples, and Plums have been within the means of all classes in all parts of the country; and even Apricots and Nectarines, by orchard cultivation, have been seen in our markets. But let no one imagine from this circumstance that the Curculio, the *great destroyer* of fruit in America, is extinct, or even diminished in numbers. Let no one suppose for a moment that this apparent cessation of hostilities is due to the use of Whale Oil Soap, or fumigations, or sulphur, or lime, or any other, or *all* other specific remedies for the Curculio that we see so constantly recommended in the fruit books and agricultural papers.

The season has been a remarkable one: fruit of every kind set profusely. The Turk commenced operations as usual, and probably as much fruit suffered this year as any other; but with so much to begin with there has generally been an abundance left, though I have hardly seen a Plum-tree that did not lose half or three-quarters of its fruit, and in many instances all has been taken. In many Apple orchards I have seen the ground thickly strewn with punctured fruit, but still there was plenty left. The Cherries and Peaches, as is usual when the crops of Plums and Apples are abundant, suffered but little. The Apricot being the first fruit large enough for the attacks of this insect, will always suffer alike, and requires the utmost vigilance to save it any year. The Nectarine, though not so early, is a special favorite from its smooth and tender skin; it also is seldom saved, except when under glass.

I have had a long war with the Curculio. I have battled with him through fifteen campaigns, and, except the three first, when I relied upon the weapons of quackery, have always conquered. I have used the various washes, and fumigations of horrible odors. I have built fortifications of cotton and tar, and troughs filled with oil, round the bodies of the trees. I have placed whole loads of offensive manures under favorite fruits, and on one occasion bored holes in the bodies of trees and plugged in charges of sulpher. Even at this time I occasionally jarred the trees over sheets, as directed in some of the books, and killed large numbers of the enemy, but subsequent experience proved that this last was not effectually done: the consequence was, I had no Apricots, no Nectarines, no Plums, and but few Apples except little knurly things.

But since those three years I have resorted to the *jarring* process systematically, and have found it a perfect remedy. My fruit crops since have never failed; even the Apricot and Nectarine trees never losing any portions of their crops from this cause, and frequently overloaded.

The *black knot*, that disfigures the Plum orchards in so many parts of the country, and finally destroying so many trees, is also caused by the Curculio.

The *rot*, that carries off in a few days so many kinds of Plums just before they ripen, and when we think the crop secure, is also caused by the same enemy.

If the Curculio passed a part of its life, as most other insects do, exposed to the attacks of the ichneumon, some one of these parasite flies might come to our rescue. But its larvæ are so deeply imbedded in the fruit, that the smaller varieties of these flies could not reach them with their ovipositors, and the young Curculio is too small to answer as a nidus for the larger ichneumons. And then, too, they penetrate into the earth to the depth of several inches, as soon as they have come to their growth and leave the fruit. As the ichneumon is not known to use the bodies of the imago, or mature insect of any kind, as a deposit for its eggs, it is not likely to choose the Curculio. Still, as there has been a notice lately published by some gentleman in Canada, that he has found parasite insects in the larvæ of the Curculio, I will not venture to say that it is impossible; and if it should prove true, *let all the people rejoice*. There was a time when an insect pest threatened the entire destruction of the wheat crop in America, and in the midst of the most fearful alarm, a little ichneumon fly took charge of the matter and settled it effectually. If this Curculio question could be settled in the same way, the whole people of America might partake freely of all the varieties of our glorious fruits, at an expense merely nominal compared with the present. The total destruction of this little insect, of which it takes *four* to weigh a single grain, or 5,760 to make a pound, would add more to the comfort, the health, and the happiness of the whole people of our country than has been brought about by any one cause since the extinction of the Hessian fly.

In France, parts of Italy, in Persia, and Independent Tartary, they have apricots as we have peaches in our Middle States. In the more mountainous parts of these countries, where they have the extremes of heat and cold, they flourish best: in this country the cultivation of this delicious fruit has not been understood. We have supposed it could only be grown under glass, or as a wall-fruit; it will flourish high up in mountain regions, and the less early spring weather the better.

In parts of Germany, plum-trees line every road, and the fruit is so abundant that they can send dried plums or prunes to us so cheap, that the beautiful boxes they are packed in are worth nearly the cost. In those countries *they have no Curculio*. We have the same kinds of fruit-trees, as favorable climate, and soil as good, but a large portion of our population, in a majority of seasons, have but little fruit of any kind, and but few ever see an apricot. Now the question arises, What can be done? We may hope for the discovery of some cheap and effectual remedy. We may hope also for some cure for consumption or cancer, and we have no right to suppose that we shall always hope in vain; but we are obliged to say that such cures are not now known. I do not wish to discourage others from experimenting with the various remedies so boldly recommended, but merely to say, that my experience has been so unfavorable, that I have no confidence in any of them. Suppose you discover a fumigation so disagreeable that it would drive the Curculio from your trees; it would not kill them, and back they would come as soon as the smoke had cleared away. And the idea of keeping up that kind of a war for six weeks is absurd. About the same may be said of the various washes that are to be thrown into the trees by hand-engines or syringes. Tar upon the bodies of your trees would prevent them creeping up for a day or two until it became glazed, but they are already in the trees, and seldom creep either down or up. And they can fly, and pass from one orchard to another. No. The Curculio attacks our fruits with but one object—to perpetuate its race. The young fruit is its proper nidus, and if you drive it from one tree it will find another. Each female Curculio has several hundred eggs to dispose of, and if she can, will take as many hundred young plums for their portions; and I think I see

her laughing in her sleeve at the idea of disagreeable odors stopping her in the performance of that duty.

We may guard ourselves to some extent against the ravages of this pest by gathering carefully every day the punctured fruit, and destroying it before the larvæ have escaped. A neighborhood combination for this purpose would be the proper plan, and would probably be effectual. In *gardens* it *must* be done, or the jarring process over the sheet will be your only resource if you expect fruit at all. In larger fruit establishments—in orchards of Apples, Plums, and Cherries—have all your trees so inclosed that your hogs shall be there throughout the summer—the larger the broods of young pigs the better—and feed the mothers sparingly, so that they will be constantly watching for the falling fruit. Have your poultry in the same inclosure, and although they will not eat the young fruit, the full-grown larva or grub of the Curculio is a dainty morsel for them, and all they find after leaving the fruit and before they enter the ground, will not be very likely to do you any mischief the next year. But if this has not been done, or your neighbors decline to join you in the undertaking, and you find, when the eighteenth day of May comes, that the Curculio is upon you, take a careful survey of your orchards, and calculate the probable value of your crop of fruit, if what is then on the trees can be got to market in full perfection. If you decide that the fruit will be worth more than the cost of preserving it, arrange the plan of the campaign at once—prepare your sheets, for they are all the weapons you will require; have extra labor ready, (stout boys, if reliable, will do;) let the corn, potatoes, and even the hay and grain harvests be subordinate, unless your force is so strong that all can go on together.

During wet days, and some cold windy days, the Curculios are inactive, but when the pleasant weather comes, and especially the *very* hot days in May and June, *how soon* they make up for lost time! All insect life is active in proportion to the heat of the weather, and I have sometimes thought, when the safety of a hundred bushels of Apricots depended upon the labor of a few hours, when the thermometer stood at 120 in the sunshine, that nothing else on earth could be so invigorated by heat as the Curculio.

This business of securing fruit from the Curculio, where the pest has become fully established, is a most laborious one. The patience of nine out of every ten that attempt it will be exhausted; hence the necessity of making it a matter of calculation. You must begin even before the fruit is large enough to be injured, for the insect is lying in wait for it, and can frequently be taken before any mischief has been done. In observations carried through a series of years, near the Hudson River, in the latitude of 42°, the first signs of the Curculio were upon the Apricot on the 18th of May, and from seven to ten days later the Plums would be attacked; and I have frequently seen the entire crop of these fruits destroyed within three days. The length of time necessary to carry on this war will vary, but will require more or less attention almost till the time of ripening. If you attack them vigorously from the first, you may have them so much diminished in number in two or three weeks, that the labor afterwards will not be so irksome; and if your trees shall be so plentifully set with fruit as to be benefited by thinning out, you may, if you choose, permit the few that remain to have a chance to perform the duty they were created for—prevent the trees from overbearing. There will be some risk in this, however, as the Curculio and you are not governed by the same motives. She does not estimate its value by what money it will bring in the market, as you do, and therefore you must be cautious about trusting it wholly to her management.

(*To be continued.*)

THE HISTORY OF A GARDEN-FRAME.

WRITTEN BY ITSELF.

Yes! gentle reader, (as we used to say in the old-fashioned times—and I am an old-fashioned body in my way,) "Written by itself." And why not? In these days we have tables and chairs dancing polkas, and although they may have legs and I have not, yet I trow I have more *life* within me, generally speaking, than they have. Why should not I, therefore, essay my literary powers and tell my own story?

Now this may be to you, and may be to me also, but that is no business of yours; and if my master is a good-natured fellow, and willing to help me with his pen, provided my tale be true, and you find a wrinkle or two worth knowing in it, what does it concern you to know how much is my writing and how much my master's? He and I always work together. He may have the advantage of me in penmanship; but can he grow a lettuce or a melon? Not a bit of it. I can. Ay, and what is more, I can make a bit of ground not half the size of your dining-room grow more crops in number in one year than you can, Mr. Reader, on all your big acres in two; and that is what makes me write my life for your benefit. So here goes.

Unlike the butterfly, my *Imago* state was that in which I first drew breath, a fine, handsome pine, down south, in good old Georgia. Gloriously did I with my fellows luxuriate in the freedom of forest scenery in that sunny clime. But, as with many a daughter of Eve, my beauty was my ruin! The ruthless axe at my root laid me low; and I will not dwell on the indignities I was destined to undergo until I found myself transformed into my present shape—*a four-light garden-frame, six feet by twelve.*

It was in this shape that I made the acquaintance of my present master, who, I must admit, uses me well; albeit, he insists on my being always at work. This, however, I do not mind, for since I have left the South, and find every body up in these northern latitudes so plaguy active, I have never liked to be idle, having, you must know, a certain degree of pride left in my composition, (notwithstanding the severe check my vanity received when that rascally fellow's axe put an end to the verdant beauty of my early forest life,) and consequently I should not like to be looked down upon as either useless or idle.

It is with me as with many people one meets with in the world; much depends, as to the good I do, upon the people with whom I associate. "Evil communications," etc., (you know the rest,) and if I fall into good hands, why, I can do no end of work. I always say to my master, "You do your part and I will do mine"—and I am now going to give you the history of the last year of my life, it having been, in my modest opinion, a pretty satisfactory proof of what I can do; and as I must admit that my style of living has something of the monotonous in its character, I will not weary your patience with more than this sample of my existence since I assumed my present form.

On the advent of the new year before last, I found myself resting on a spot of rich earth in my master's garden, and filled with a luxuriating growth of endive and lettuce, the latter of which I then supplied daily to my master's table, and which had been planted into my quarters in the preceding month of September, (the latter end,) from a seed-bed. The endive had not been sown so early, and I noticed that my master cut it back, leaving nothing but the centre small leaves, which, however, grew so rapidly, that by the end of March there was a fine

growth of bushy endive, which through part of March and April took the place of the early lettuce in my master's salad bowl.

I should mention, that the part of my lights that had contained the lettuce was emptied by the frequent demands upon it in January and February, and therefore, in the first week in March, my master refilled it with young lettuce plants from a seed-bed that he had provided in another frame, and these I immediately started into rapid growth; and by the first week in May they were ready to succeed the endive, which by that time had been disposed of.

I have always been fond of the fair sex. Their smile of approbation seems always to stimulate my efforts, and I conclude my master has the same taste, (or weakness, as you please,) for he pushed a few roots of violets into one of my corners before the winter, so that whenever the ladies of the family came, as they would do sometimes on a sunny day in February, to see how I progressed in my operations, there was always some fragrance to welcome their approach.

But having arrived at the first week in May, and having brought up a fine crop of lettuce, then in perfection, and some endive being still left, my master thought my further services were no longer required by them; and I found he was about to change my position altogether, and I soon discovered the cause. He had, it seems, toward the end of March, sown some cauliflower and early cabbage on a hotbed, and the plants were now in a state that required transplanting previous to their final removal to the open ground; a plan which many persons do not take the trouble to adopt, but which will always repay the gardener both as regards the quality and the early maturity of the crop.

I was therefore, early in May, removed to a part of the garden that had been prepared for these cabbage plants, and they were introduced to me immediately; and I assure you, that by the end of that month I had brought them into such a state of sturdy growth, that when they were then carefully transferred to the open compartments of the garden, they soon told a tale that I am too modest to repeat. I admit, however, I was proud of them, and those who have tried it know that it is not every one who can grow early summer cauliflowers fine from spring-sown seed.

Having a pretty good knowledge of gardening, I now thought that the time had arrived when I should be allowed a run of idle time; and, as I have said before that I hate laziness, I was wishing I could take a trip to a colder region, where I might find some constant employment; but I reckoned without my host, for before the last of my cabbages and cauliflowers had vanished, I found myself again on the wing to new quarters—where, I could not imagine; but my wanderings were of short duration, for my master and his man put me down in a few minutes in the melon ground.

I had seen plenty of melons grown in the open ground, but my master thought, as I heard him say, that he saw no use in my remaining idle, and that I might just as well serve his turn by helping the melons along, and at the same time take care of some pots of cuttings of greenhouse plants that he had picked up in his wanderings, and which there would be ample room for in my spacious quarters until the melons made more foliage. Accordingly, I was placed over a good bed of manure with rich compost upon it, and some fine young melon plants that came from the hotbed were planted in it in a couple of days, as soon as the compost was warmed by the sun above and the manure beneath; and off I started again for a fresh crop!

With the assistance of the sun and my master's watering-pot, I can tell you those melons grew; and after due thinning and stopping, and various manipula-

tions that seemed to indicate a vast amount of care on my master's part, (much of which seemed to me needless,) there certainly was as fine a crop of melons in August and September as I ever beheld. But before they were all disposed of, my services were no longer of any use, and according to my master's system of always keeping me busy, the time had arrived for me again to change my quarters.

About the middle of September, then, I was sent back to my old quarters for the winter; and a lot of old hotbed compost having been placed within my four sides, I found that three-fourths of my compartments were filled with young lettuce plants, (from a seed-bed made in a shady spot early in August,) and the remaining fourth was sown with cauliflower plants at two or three sowings between the 12th and 25th of September, and which it was to be my duty to protect until the spring. The lettuce grew steadily and well, and as my master took good care to furnish me with an ample overcoat of hay and litter as soon as frosty nights occurred, and, moreover, in very sharp December days, to leave it on sometimes in the day as well as at night, I had the satisfaction of sending as fine a bowl of lettuce to the Christmas dinner-table as any one would wish to eat. They are great salad people at our house, and, winter or summer, it never comes amiss. Were it otherwise, I suppose my winter's crop would be limited to seed lettuce or cabbage plants. But these we get as early from a spring hotbed as they can be trusted for planting out, and, consequently, my master does not trouble himself about keeping any of that tribe but cauliflowers through the severe weather.

And now I have told my tale. I have turned out,

1. A crop of lettuce and endive January to March.
2. Lettuce again early in May.
3. Cabbages, end of May.
4. Melons in August.
5. Lettuce in December.
6. Cauliflowers for the winter.

A plain, unvarnished tale, which, if they like it, all my brethren may imitate; nay, which many doubtless in skilful hands may excel. But I write not to the learned, but to the lazy, and also to encourage him who would be a gardener, but knows not how. And to the latter let me add, that my master says, no one can work me even for a single year without learning

"To look through nature up to nature's God!"

[We are much obliged to you, Mr. Garden-frame, for this interesting sketch of your history; no doubt you could tell us a great deal more. If all your inanimate brethren could speak, what lessons of wisdom might be learned! Let us hear your voice again.—Ed.]

NEW ZEALAND SPINACH—(Tetragona Expansa, Linn.)

BY CHARLES MORE, YORKVILLE, N. Y.

This plant is a native of New Zealand and the South Sea, and was introduced into Europe by Sir J. Banks in 1772. Captain Cook, in the relation of his voyage around the world, mentions it as a good vegetable, and a powerful anti-scurvy remedy.

Its cultivation consists in sowing the seed early in spring or late in the fall,

(the seeds will not be damaged by the frost, and will do better than those sown in spring,) in hills, from four to five feet apart, situated, if possible, in a warm and dry soil. One spadeful of rotten dung must be put into each hill. Four or five seeds will be enough. When they get to be strong enough they should be thinned to one or two plants in each hill. They will cover the ground in a short time.

I have no doubt this vegetable will be of great value in the Southern States as a summer green.

[We have often wondered why this spinach is not more commonly grown, especially as a summer and fall crop. Though not quite as good as the common spinach, still it is a nice green, is easily grown, and may be picked during all the summer and fall. It will sow itself when once introduced, and allowed to ripen its seed. It is a trailing plant, and the ends of the shoots and the young leaves are the parts used. We hope some of our readers will try it. If planted in spring, the seed should be soaked about twenty-four hours in warm water.—Ed.]

CALADIUM CHANTINII.

(See Frontispiece.)

BY THE EDITOR.

We present for a *Frontispiece* this month, another of the beautiful variegated leaved plants, *Caladium Chantinii.* We have still another in preparation. Our present subject is one of the gaudiest of this tribe of plants; the rich, deep green ground color contrasts finely with the shaded crimson veins; and as a farther variety and contrast, there are numerous spots, from shaded pink to pearly white. Our specimen is greatly reduced in size, and was taken from a plant grown by Mr. Hamlyn, gardener to W. C. Langley, Esq., of Bay Ridge. The leaves are usually from four to six inches wide, and twelve to eighteen long.

EDITOR'S TABLE.

To Contributors and others.

Communications, Letters, Catalogues, Periodicals, &c., intended for the perusal of the Editor, and packages by Express, should be directed to the care of C. M. Saxton, 25 Park Row, New York. Exchanges should be addressed to "THE HORTICULTURIST."

PLANTS, &C., RECEIVED.—From *Mr. Barker*, of Hartford, Gazania splendens, Dianthus Verschaffeltii, Pansies, Phlox, and Fuchsias, for which we return our best thanks. Also, some flowers of a new Polyanthus, *Golden Circle*, well named and very beautiful.—From *Mr. Pentland*, of Baltimore, some seedling Verbenas, with a request to test them, which we shall do with pleasure.—From *Mr. Bridgeman*, New York, seed of a new Spinach from New Holland, good for summer and fall use.

BROOKLYN HORTICULTURAL SOCIETY.—We are glad to learn that our Brooklyn friends are already in motion for 1861. The Spring Exhibition will be held at the new Academy of Music, on the 17th, 18th, and 19th of April. The prize list is very liberal, amounting to $277, besides a list of valuable books for special prizes. Some of the leading prizes are the following: Best collection of plants in pots, $15. Best 8 stove or greenhouse plants, $10. Best 6 variegated or ornamental-foliaged plants, $5. Best 2 Orchids, $4; best single Orchid, $2. Best 6 Azaleas, $8; best single specimen Azalea, $3. Best 4 Ericas, $6. Best single specimen Erica, $3. Best 6 Pelargoniums, $5; best 3 scarlet varieties, $3. Best 8 varieties of Roses, $6; best 6, $4. Best specimen of tuberous-rooted Tropœolum, $2. Best 3 Fuchsias, $3; best specimen, $1. Best 4 Gloxinias, $3. Best 4 Cinerarias, $3. Best double Chinese Primrose, $1. Best 6 Hyacinths, $3. Best 4 monthly Carnations, $3. Best 4 varieties of Pinks, $2. Best collection of cut flowers, $4. Best 6 cut Camellias, $3. Best 12 cut Roses, $2. Best 12 Pansies, $1. Best Parlor Bouquet, $4. Best pair of Hand Bouquets, $3. Best Basket of Flowers, $4. Best 2 bunches of Hothouse Grapes, $5. Best dish of Strawberries, $2. Best brace of Cucumbers, $2. Best Lettuce, Rhubarb, Radishes, Asparagus, and Sea Kale, $1 each; Best and most correct Labelling of Plants, $2. In the special list, there are handsome book prizes for the best *design* for a yard 25 by 150, with a list of Fruits, Hardy Shrubs, and Flowers, adapted to it, each plant to be located in the design. Best *design* for a yard 25 by 60, embracing the same conditions as above. Best *Fern Case*. Best 3 *Hanging Baskets*. Best collection of *Aquatic Plants*, suitable for fresh-water aquaria, tank, or fountain. Best *Fresh-water Aquarium*, fitted up and stocked. Last, *Greatest number of new members* handed in by one person and elected before the close of the exhibition. The prize for this novel *exhibition* is Downing's Rural Essays, and we hope to see it contended for in a spirited manner. We are much pleased to see the prizes for *Designs*, and hope they will bring out some worthy competitors. One of the rules says, "All articles for competition must be brought on the appointed day by 12 o'clock, M. *This rule will be rigorously enforced.*" We are glad to hear it. Let it be distinctly understood that you mean to be as good as your word, and you will effect a much-needed reform, and save the judges and the public from needless annoyance. We wish you all a right good time. Prize Lists may be had by applyng to President Degrauw, 69 Washington Street, New York.

STUARTIA PENTAGYNIA.

STUARTIA PENTAGYNIA.—We saw a fine specimen of this beautiful shrub at the Messrs. Parsons', of Flushing, L. I., last season. It ought to be much more commonly grown than it is, blooming, as it does, at a season of the year when our shrubbery is quite destitute of flowers. The specimen at the Messrs. Parsons' is about ten feet high, and as many in diameter, forming a beautiful, compact, round-headed tree, or shrub. It is a native, is perfectly hardy, and will grow well in any ordinary good soil. It blooms in August; the flowers (of which our drawing, reduced in size, gives a good idea) are about two inches and a half in diameter, with a purple centre and crimped petals. We shall hope to see this fine shrub more common.

PROCEEDINGS OF THE PROGRESSIVE GARDENERS' SOCIETY.—Copies of these very useful and interesting essays, already noticed, may now be had of Saxton & Barker, 25 Park Row, New York. Price 25 cents.

THE HYDROPULT.—One of our correspondents, it will be seen, objects to the expense of a garden engine in the application of Mr. Veitch's remedy for the "slug." This objection can be measurably met by using Vose's Hydropult, a portable, cheap, and efficient instrument for this and all gardening purposes. We have thrown water with it fully sixty feet perpendicularly. It is a convenient and useful article for both the greenhouse and garden.

A FINE BRACE OF CUCUMBERS.—During the last week in February we received a brace of Cucumbers from Mr. Stubbins, (gardener to Col. Colt,) measuring some *twenty* inches in length. This, for the season of the year, is drawing it out pretty strong. They were very fine, and equal in flavor to the best long Cucumbers that we have yet seen.

LATE CHERRIES.—We have just received a letter from Dr. Kirtland, in which he says, in reference to the inquiries of "An old Subscriber," that the Red Jacket and Tecumseh Cherries ripen a few days later than Downer's Late Red, and are superior to it in almost every point. They are described in Mr. Elliott's Fruit Book.

THRIPS.—We last month, in Mr. Richardson's article, page 118, line 17 from top, put "thrips" in his frame of Dahlias; and in this we were a little too fast. "Slugs" are the fellows to look after at that season of the year; "thrips" come along a good deal later.

FRUIT-GROWERS' SOCIETY OF EASTERN PENNSYLVANIA.—At the late annual meeting the following gentlemen were elected officers for 1861: *President*—Dr. J. K. Eshleman. *Vice-Presidents*—Joseph E. Mitchell, J. B. Garber, Samuel Miller. *Recording Secretary*—Gustavus Heins. *Corresponding Secretary*—Charles Dingee. *Treasurer*—Robert Otto.

The proceedings on this occasion are said to have been very interesting, but we have received no copy of them.

BOOKS AND CATALOGUES RECEIVED.

Descriptive Catalogue of Fruit and Ornamental Trees and Shrubs, Grape-vines, Evergreens, Roses, Dahlias, Verbenas, and other Bedding Plants, &c., for sale at the Columbus Nursery, by *Bateham, Hanford & Co.*, Columbus, Ohio.

Catalogue of Fruit and Ornamental Trees, Shrubs, Vines, &c., for sale at *Bridgeman's* Horticultural Establishment, Nos. 876 and 878 Broadway, New York. Nursery and Greenhouses, Astoria, L. I.

Catalogue of a choice Collection of Flower and Vegetable Seeds, embracing many new and rare Varieties, besides all the old established Favorites, with copious Descriptive and Cultural Notes, &c. Put up by *Barnes & Washburn*, Harrison Square, Mass., (four miles from Boston.)

The Nansemond Sweet Potato: Directions for Propagation, Culture, and Preservation. Also, Experience of Growers in different parts of the country. *Charles B. Murray*, (successor to Murray & Son,) Foster's Crossings, Warren Co., Ohio.

Catalogue of Greenhouse, Hothouse, and hardy Herbaceous Plants, for sale at *Bridgeman's* Horticultural Establishment, Nos. 876 and 878 Broadway, New York. Nursery and Greenhouses at Astoria, L. I.

Spring Catalogue of new and choice bedding-out Plants, Seeds, Bulbs, &c., for sale by *John G. Barker*, Wethersfield Avenue, Hartford, Conn.

Catalogue of Flower and Vegetable Seeds, Plants, Bulbous Roots, Grape-vines, &c., for sale by *James H. Park*, at his new Horticultural and Seed Warehouse and extensive Greenhouses, Court Street, corner of State, Brooklyn, L. I.

Descriptive Catalogue of Roses, Greenhouse and Bedding Plants, cultivated and for sale

at the Hampden Nursery, Springfield, Mass., by *Richard Bliss*, successor to Chauncey Brewer.

Fruit, Forest, and Ornamental Trees, and Hardy Flowering Shrubs, Native Grape-vines, Hardy Roses, Greenhouse Plants, Strawberry Plants, Rhubarb Roots, Asparagus, &c. *J. W. Manning*, Reading, Mass.

Annual Meeting of the Fruit-Growers' Society of Western New York, held at Rochester, January 9th and 10th, 1861.—We are indebted to Secretary Bissell for the proceedings, already published in our columns.

Report of the Committee of the Overseers of Harvard College, appointed to visit the Library for the Year 1860.—We learn from this that 8,500 volumes were added to the Library during the year 1860. The total number of volumes is over 90,000, besides some 50,000 unbound pamphlets: a wealth of literature without an equal in the country.

Bridgeman's Descriptive Catalogue No. 6. New and Select Bedding Plants, Roses, &c., for sale by Andrew Bridgeman, 878 Broadway, New York.

Abridged Catalogue of Fruit and Ornamental Trees, Vines, Roses, &c., for sale by *Edward J. Evans & Co.*, Central Nurseries, York, Pa.

A Descriptive Catalogue of a choice Collection of Vegetable, Agricultural, and Flower Seeds, containing all the select varieties of our own growth, and a large assortment selected from the Stocks of the first Continental and English Growers, &c. For sale by *Benjamin K. Bliss*, No. 210 Main Street, Springfield, Mass.—The printer deserves a medal for the handsome manner in which this Catalogue is printed. Some of our friends will have to look out for their laurels.

Descriptive Catalogue of Fruit and Ornamental Trees, Flowering Shrubs, Roses, Vines, &c., cultivated at the East New London Nurseries, New London, Conn. *Wm. H. Starr*, Proprietor. H. E. Chitty, Manager.

Proceedings of the Eighth Session of the American Pomological Society, held in Philadelphia, September 11, 12, and 13, 1860. Published by the Society.

New and Rare Plants introduced and for sale by *Isaac Buchanan & Son*, Nurserymen and Florists, 9 West 17th Street, New York. Gardens, Astoria, L. I.

Additional List of Flower Seeds, including Novelties for 1861, for sale by *Alfred Bridgeman*, 876 Broadway, New York.

The Cranberry Culturist; being a concise Practical Treatise on the Cranberry, &c. By *W. H. Starr*, East New London Nurseries, New London, Conn.

Catalogue of Greenhouse, Stove, and Bedding Plants, cultivated and for sale at the Commercial Garden and Nursery of *Parsons & Co.*, Flushing, L. I.

Diseases of the Throat and Lungs. By R. T. Trall, M. D. New York: Fowler & Wells, 308 Broadway, New York.

Works of Dr. Harris.—We are glad to learn that Messrs. Lippincott & Co., of Philadelphia, are about to issue the Entomological Writings of Thaddeus William Harris, edited by William Sharswood. The volume will conform, in style and appearance, to Dr. Harris's "Treatise on the Insects of New England Injurious to Vegetation," now being reprinted. The writings of this eminent entomologist ought to find their way into the library not only of every scholar, but every horticulturist; for the latter it will have a peculiar value.

Correspondence.

MR. EDITOR:—Having read an article in your February number touching the Rose-slug, I am induced to communicate my own experience in exterminating the so-called pest.

I have already made some statements to this effect one year ago, at a meeting of the N. Y. Farmers' Club; and as the season is approaching when such information would be acceptable, I would, if you consider it worth a place in the columns of the Horticulturist, give a more detailed account of my practice. It is this: I obtain from the road a quantity of well-sifted, dry dust. I then procure some soot from the bituminous-coal chimneys, and mix as much of it with the dust as will make a dark-colored compound. I then have a tin box made, in shape and size of a quart measure, with a lid or top to fit, perforated with small holes, similar to an old-fashioned pepper-box. I therein place this fine, dry dust; and early in the morning, while the dew is on the leaves, give them a thorough dredging. This I commence to do when the slug first makes its appearance, and so continue, at intervals, until the rose-buds are about to expand. And also after rains I find it necessary to repeat, as the former application is liable to be washed off the leaves, which encourages them to renew the attack. By a timely commencement of the above process, I will have nearly exterminated the pest from the bushes when they are in full flower. By this process I have secured a second and third bloom on my monthly Rose-bushes, which were perfect.

Now, sir, I will give you my reason for using the soot with the road-dust. It is, that the dust in itself is of an unsightly grey color, which, to *my eye*, is objectionable. By mixing the soot with the dust, we preserve some harmony of color with the foliage. I have used dry, air-slaked lime alone, but what does it look like in combination with roses? Scotch snuff, used in the same way, is good, but rather expensive; furthermore, it does not dissolve readily with the moisture on the leaves, as does the road-dust, thereby rendering it a sort of pasty substance, adhering to the leaves for a longer time. The principle of my theory is, to adopt something of a nature that will attach to the smooth, waxy texture of the leaves, and remain, for the time being, to prevent the close adhesion and comfort of the slug. I do not pretend to say that we kill the slug by this process; but he *will* "vanish to parts unknown."

The "skip-jack," which is so destructive to the Melon, Turnip, Radish, &c., when they have formed their first leaves, can be exterminated in this way, by applying it at intervals. If this insect can be kept from its desired food for two hours, it will die of hunger. Another brood will probably make its appearance; repeat, until the plant is out of its reach, which will be very soon if the first leaves are cared for. In conclusion, I would say to those who do not consider a little labor and attention a hardship, they will be rewarded with success, as I have been.

GEO. H. HITE, Artist.

Morrisania, March 15th, 1861.

[We think the "slug" is in a fair way of "catching it." Mr. Hite, being an artist, applies his remedy with an artist's eye. The idea is not a bad one. We go in for "harmony" in all things. We hope the remedies we publish will be fairly tried, and the results sent to us, that we may know which is the best. The slug will find it difficult to get over all this dusting.—ED.]

P. B. MEAD, ESQ.—*Dear Sir:* It has been my pleasure to receive instruction from the pages of the HORTICULTURIST for some years. We have some fine Grape lands along the shore of Lake Erie, in our county, and although Grapes have been successfully grown for thirty years, it is quite recently that attention to vineyard culture has been awakened. Isabella and Catawba are principally grown. The former has been in high repute, but seems more liable to

mildew than some others. Catawba is quite healthy, and is growing in favor. It will ripen here almost as well as the Isabella. Concord is beginning to give fruit, and is coming more into favor the better it is known. Its perfect bunches and large berries, with its certainty of maturing, make large amends for its lack of quality. We have fruited several other kinds, but will defer a description.

I would like to know if Diana requires any peculiar management. Does close pruning injure it? Mildew was very bad last season on the Isabella. In my observations on the different vineyards last season, I found where the ground was in high condition, and often stirred, it was most severe. In vineyards where weeds and grass were allowed to grow, and on some single vines where there was no cultivation, there was little or none of the mildew.

Will you, Mr. Editor, please tell us all you know? (Editors must have no secrets.) We do want light on Grape culture in particular. Yours truly, A. S. Moss.

Fredonia, N. Y., Feb., 1861.

[Isabella and Catawba are both liable to mildew and rot, the latter especially. We are glad to know that the Catawba has thus far escaped with you. You will be fortunate if you enjoy this immunity for any length of time. Concord is a good grape; when well cultivated, about equal to the Isabella, and much larger and more certain. The Diana does not require peculiar management; it requires *good* management. Close pruning injures it, as it does all other grapes. Stirring the soil in such a way as to *disturb the roots* would tend to increase mildew; stirring the soil without this would tend to check it; so that you might very well have seen the conditions you name. We, on the contrary, saw a vineyard of some two acres, very weedy, from which not fifty pounds of grapes were gathered; but the weeds were not alone concerned in this. You may rest assured that judicious culture is always beneficial, however exceptional cases may seem to militate against it. We desire to have no secrets from our readers; but, on the contrary, to tell them whatever we may know; so let them ask freely. We have begun a series of articles which we hope may throw some light on Grape culture, at least in regard to those who are beginners.—Ed.]

Horticultural Societies.—P. B. Mead, Esq.: As you have thought my remarks upon the above worthy of notice, I beg to offer a few more. One of the objects of these Societies I take to be (or should be) to encourage the raising of superior vegetables for *human* use.

I beg to protest against the vulgar mammoth standard which seems to be set up. I deny that the man that shows the biggest pumpkin is necessarily the best gardener, or that his pumpkin must be "the cheese." As a rule, the medium-sized kinds of vegetables are the best for table use. Largeness, *for the variety*, is usually indicative of excellence, but largeness *per se* is not. The Dwarf Cabbage is better than the Ox-heart; the Savoy than the Drumhead; Horn Carrot than the Orange, &c.

Setting up so low a standard must have a tendency to prevent improvement in taste in consumers, and taste for improvement in producers. So long as the public will eat *cattle* Carrots, Beets, Turnips, Corn, and Cabbage, the gardeners will not trouble themselves to raise any thing better.

I deny the capability of judges to tell the quality of vegetables by a glance at them in the raw state.

I protest against superior, delicate varieties of fruit being damned because they will not "*market*." It is, of course, a very important point for growers for that purpose to look after, but not for others. It would be about as reasonable to recommend private growers to cultivate gourds instead of melons, because they would stand pitching out of two-story windows.

The *grower's* name should be attached to each lot exhibited, or, at any rate, if the prizes are for *collections*, let it be fairly so understood, and save growers the trouble of competing, as they

have not usually the long purses necessary for fancy marketing, or the spare time for begging tours.

BROOKLYN.

March 11, 1861.

[Brooklyn, as usual, makes some good points. *Cattle* roots might very well be banished from Horticultural Societies such as the Brooklyn, and left to Agricultural Societies, which might fitly encourage them. The gardener, being confined to *human* roots, would naturally endeavor to produce them with size and excellence combined. Competent and experienced judges can generally approximate to the comparative excellence of vegetables by a careful examination, there being certain points which indicate quality even in the crude state; but the best test of the "pudding is in the eating." Some delicious varieties of fruits will not "market" well; they should not, for this reason alone, be condemned, but be confined to amateurs. The "marketing," however, is too important a point to be overlooked. The case would be fully met by offering prizes for both, not losing sight of quality, however, in either. The grower's name should always be attached to each lot after the judges have made their examination. This is commonly neglected, and is a source of vexation to visitors. Every article should also have its proper name attached, as many go to exhibitions to learn the names of plants.—ED.]

P. B. MEAD, ESQ.—*Sir:* Permit me, as a subscriber to the HORTICULTURIST, to make a few inquiries.

I wrote to you for this purpose in November, but the letter may have shared the fate of many more valuable documents destroyed by the fire.

I am building a cold vinery, 55 by 13½ feet; front wall 1 foot, and back 12 feet; exposure, 30 deg. east of south. Could I use the back wall for Figs or Peaches? or, if I should decide to use it for Grapes instead, would I not find it more profitable to plant the Isabella or Catawba, (instead of the foreign varieties,) neither of which will ripen oftener than once in three or four years in our garden, and then not quite as thoroughly as they do elsewhere?

To avoid the attacks of the grub upon the Peach and the Apricot near the surface of the ground, and under the bifurcation, I have thought of working these trees upon the Canada Plum, or the Almond. The soil is a good *gravelly* loam, with both sand and clay for ingredients. For garden culture, would not the Peach thrive as well upon the Plum or Almond as upon its own roots, even if the grub did not exist?

The fruit-garden which I am about to plant, 300 feet by 100, is much exposed to severe winter winds. To shelter it, I wish to plant suitable trees, so as not to occupy a wider strip of ground than ten or twelve feet, the branches extending each way five or six, or less if it can be done, and permit a height of twenty-five or thirty.

What distance apart should the trees be planted? and is there any more rapid-growing tree than the Norway Fir, which would, by a reasonable amount of shearing, secure a tolerable exclusion of the wind? and how much of a task would such shearing be?

In making this application, I hope I do not trespass on your time and patience.

Very respectfully, your obedient servant, JOHN PUMPELLY.

Owego, Feb. 5, 1861.

[We do not quite like the form of your house, but we suppose it is "done" now. Figs would do better than Peaches on your back wall, but you can not grow the *best* fruit of any kind there. If you grow any thing there, let it be the Sweetwater or the White Chasselas. We think the Delaware, Diana, Hartford Prolific, and Creveling would all ripen with you in the open air. Try them. The Peach will grow well on either the Plum or Almond, and the former would relieve you of much trouble with the borer. To prevent the borer from attacking your Peaches, paint your trees with *common* tar reduced to a liquid state by hot water; apply it beneath the surface a couple of inches, and six or eight above, early in the spring. Any refuse

grease laid on thick will answer as well as the tar. When cut off below, we have known the borer enter the tree two and three feet above the ground. The above remedy, however, *timely* applied, will answer the purpose. Where the borer is already in the tree, it must be cut out.—Either the Hemlock or Norway Spruce would make a beautiful hedge, and answer your purpose fully. We can think of nothing better. The shearing would be a comparatively small matter. Plant the trees about four feet apart, and take cut the leader. It will come in again, but must be removed from year to year, to keep the bottom well filled. The Norway Spruce will make a hedge sooner than the Hemlock, but not such a pretty one.—Your former article was consumed, and we are obliged to you for repeating the questions.—ED.]

MR. EDITOR:—I have noticed an article in the March number of the HORTICULTURIST, under the heading of "Imported Roses," by Mr. Andrew S. Fuller, of Brooklyn, L. I., in which he makes assertions and uses phrases that seem to require a little more ventilation or elucidation, in order to make them fully intelligible to your numerous readers.

It is not my purpose to dissent from the conclusion sought to be derived, but to question the method and statements by which that end is attained. I may therefore be excused for propounding, through you, a few questions, with the intent of bringing forth more light on the subject.

In the first place, permit me to ask what Florist or Nurseryman neglects to produce Roses himself, and thus "allows his simple vanity to get the better of his judgment?" or what is there particularly simple or vain in choosing to grow Roses, or not to grow them?

Again, have not new American Roses of decided merit been sold in this country at as good prices, and with as ready sale, as new French Roses are in France? Among my own importations, I have received the new Roses every year in limited quantities, without extra charge, but very much doubt whether they could be obtained here from the producer, under like circumstances, without paying a considerable advance.

For the sake of argument, we will admit that the Rose Madame Trudeau was sent to France to be propagated, and afterwards sold to our people as a French Rose: was the discovery, by those who purchased it, that so good a Rose as this was an American production, a just cause for the least chagrin? Why, sir, I should judge, with my feeble perceptions of human nature, and of American human nature particularly, that "a peep behind the scenes," resulting in such a discovery, would be very gratifying to every lover of progress in this country.

Respecting French Roses grafted on the briar, we have not so much fault to find with the root as the disposition to hedge around their stock with innumerable smaller ones, that draw the sap from the stock for their own sustenance, treating the foreigner on the top of the stock as an intruder. No doubt the disposition to sucker is promoted by the dryness of the main stock, but even the most vigorous will produce them, and if not frequently looked after and pruned out, they will deprive the stock of nourishment, and thus cause it to die.

Passing over the next three paragraphs, we come to a statement showing what Roses can be bought for here, and also what it will cost to import them from France.

This showing implies that we have a choice in the mode of procuring them. Suppose we were to make out a list embracing fifty varieties of the best Hybrid Perpetual Roses, either on their own roots or on Manetti stock—say, from 25 to 200 of each—where is the Florist in this country that will undertake to furnish them? I venture to assert, without fear of contradiction, that there is not a Rose-grower in this country that could furnish one half of them, and those he did furnish would probably not be the most desirable kinds, but those only that are the most easily propagated. And this is not the case because growers here are not alive to the importance of it. There are those who have been engaged in the business for years,

who have not managed to grow, of the most popular kinds, more than they require to supply the demand in their immediate vicinity. The cause of this deficiency may be, that they prefer the ready cash produced by the sale of them, to having a good stock in the ground to get up a stock upon.

The statement respecting the cost of importing Roses must be based on Mr. Fuller's experience, or he would not have thus given it as a positive result. On the faith of this, may I be excused in seeking to be informed where Roses corresponding, or even approaching, to "first-class, large, two-year-old plants," can be purchased at the rate of seven cents apiece by the thousand? Why, Mr. Editor, many that I could mention, as well as your humble servant, have been silly enough to pay thirteen cents each for very small Roses on their own roots; and the information that will enable us to get Roses any way approaching to first-class, large two-year-old plants at a price so greatly reduced, would merit and shall receive our unqualified and heartfelt thanks.

I have before me the invoices, for years back, of Roses which I have imported, and by them I find that every plant, large and small, good, bad, and indifferent, including expenses, cost me, on an average, upwards of 17 cents each; and if the proportion of loss were to be added to each, (without including near two thousand on their own roots, imported by us last year, which were almost a total loss,) they would stand me in not less than 25 cents each; so that, instead of the difference being six cents in favor of importing, it is five cents each against importing, provided they could be purchased here, of the kinds desired, and at the price stated, besides the advantage of having better plants.

I am curious to know what is meant by "Angers being the Rochester of America." Is it that they produce a great many Roses, or a very few Roses? or are we to infer that Angers is the place where we can buy Roses so cheap, and that Rochester is similar to it in that respect? or does it not apply to Roses at all, but to something else yet unrevealed?

Not having seen Mr. Fuller's production till yesterday, and having been engaged revising proofs of a catalogue of new Bedding Plants until this morning, I have not had the time to give the subject as much consideration as I would wish. Awaiting answers to my queries, and with the assurance of their grateful reception, I leave the subject for the present.

Very respectfully, ANDREW BRIDGEMAN.

[We have only time to say, in reference to this whole subject, that we shall be glad to have all the facts brought out.—ED.]

EDITOR HORTICULTURIST.—*Dear Sir:* In reference to the Delaware Grape, I want a little information. I commonly neglect giving proper attention to my vines, and as a labor-saving operation, have for some years permitted the Rose-bugs to do the needed thinning out of the crop.

Until the past year these voluntary workers have confined their ravages to just bounds; but then they were altogether too effective, except upon the Delawares. Strangely enough, (to me,) they paid no attention whatever to this Grape; and this has been the case during the three years my Delawares have yielded fruit. There was no difference in position; the same trellis sustained six sorts of Grapes, Delaware, Diana, Rebecca, To Kalon, Catawba, and Isabella, and all except the first suffered. Has your attention ever been called to this peculiarity? and can this freedom from Rose-bug ravages be relied upon? and to what do you attribute it? If Rose-bugs have a chronic dislike to this Grape, it is important that it should be more generally known, and you would confer a favor on the community by some public statement concerning it.

I am anxious to know if I am to rely upon my own thinning out to prevent excessive bearing. My Delawares began bearing *almost as soon as I put them in the ground*, (one vine, a layer,

gave me several bunches the first season, not less than fifty the second, and over one hundred and fifty the third,) and they keep at it with a rapidly-increasing profuseness, having borne last season an average of about one hundred and fifty bunches of well-ripened and delicious fruit. I am sometimes fearful that my vines are over-burdened, and yet they have each year made a large growth of well-ripened wood. And, by the way, please tell me why the chickens so carefully select my Delawares in preference to all other Grapes, when the Rose-bugs carefully avoid them? Perhaps you think Grapes are not as good in June as in September.

Bay Ridge, L. I. Truly yours, GEO. T. HOPE.

[An instance, this, of mistaken mercy. You should have allowed the Rose-bug no quarter from the beginning, and must commence now. You can in a great measure rid yourself of them permanently by a little persistent killing; but you must be sure to kill them "dead," for they have as many lives as a cat. It *is* singular that your Delawares have escaped this pest, but we do not think you can rely upon such immunity. It would be curious to learn how far others have escaped, and we should be glad to have our readers give their attention to the subject during the coming season. You *must*, as a general thing, rely upon your own thinning out. Circumstances may occasionally regulate this matter for you, but not often. The small labor will be amply repaid. We are glad to hear that your Delawares give you such returns; the fact shows that your border was well prepared, and that your vines were not only properly planted, but well furnished with sound, healthy roots. But excessive bearing will gradually weaken them, and they will in the end die of premature old age. The vigor of youth should be regulated, and not allowed to run unchecked its rapid course. The Rose-bug is about the most disgusting and contemptible of all insects, and is too stupid to choose between a good thing and a bad one; chickens, on the contrary, belong to a higher order, have well-regulated tastes, and always take the best they can find; though there *is*, after all, some difference between Grapes in June and September, especially if they happen to be Delawares! If you would save your Delawares from the chickens, plant by the side of them some kind that is better—when you can find it.—ED.]

A WORD TO THE TRADE.—Thank you, Mr. Peter B. Mead, for the leader on the above subject. And I will warrant me there are hundreds and thousands of your friends who will say amen and amen to my thanks. "A word fitly spoken," and may it do good.

Allow me to ask a question. Suppose, for example, you send to our friends C. M. Saxton & Barker for $20 to $30 worth of books, and they were to charge you, "Packing 1 box, 75 cents," would you not think it "coming the giraffe?" It is a small matter complaining of so small a thing, and so is it to complain of sending a tree at fifty or at forty cents, when another was ordered; but, in this instance, admit a charge made for labor: two men, at $20 each per month, will pack ten to twenty boxes per day, which, at above rates, pays $7 50 to $15 for less than 75 cents to $1 50 expense. The right way to do is to charge for trees, and, as they have to be packed for the purchaser to get, make no charge for packing.

[The above approval, from our friend Dr. Philips, is peculiarly acceptable, though we ought not, perhaps, to expect thanks for performing a necessary though unpleasant duty. We have even been thanked by a nurseryman, who is fain to acknowledge that he has lost more than he has made by the practice; and this we believe to be the fact with all who indulge in it. We wish our friends would think of this matter seriously.—ED.]

PETER B. MEAD, NEW YORK.—*Dear Sir:* Reading to-night, in your January number, page 55, the queries propounded by Mr. Geo. H. Goodwin, from that famous place "*Hartford*," Conn., and your prompt answers, I propose to ask you a question from this spanking new republic; and, by the way, in the neighborhood of Hartford I guess there are some left who

would like to have a hand in "spanking" this republic, as my mamma used to spank this writer.

Some time since, in writing an article on fruit culture, I warned subjects to beware of two-year-old Pear-trees, and I was picked up by a sterling good writer. I prefer "maiden trees"—year-olds—to two-year-olds, because there are more fibrous roots, and fewer long roots; I prefer them because they are better, and, besides, cheaper. The reason they are better is, many unsalable in maidenhood are kept for two-year-old prices, and the fibrous roots bring additional advantages. Many thrifty yearlings have been advanced to seniority, because the extra price is an inducement. If select maiden trees are taken from the nursery and replanted at a distance of 3 by 3 apart, instead of remaining in the nursery, the tops and bottoms being judiciously pruned, then a two-year-old may be better. This is my opinion, from purchasing and growing trees since 1832. Am I correct?

I have yet another objection to two-year-olds. The proportion of top to root is not so good, unless the purchaser lifts the trees himself, and understands what he is after: and then, the hole for setting should be proportionally larger. I have bought two-year-olds from one of the best nurseries on record, replanted at a year old, and not had half the growth as from my own year-olds; of course, removal to a distance, and being packed for thirty days, makes a great difference.

If sorrowing with all suffering from losses by fire could avail, I could help; but nothing of that kind avails. Courage and determination to succeed are all that will do.

Yours, with best wishes, M. W. PHILIPS.

Republic of Mississippi, Edwards, Jan. 25, 1861.

[Republic of Mississippi! That is a strange sound to our ears. We could wish it were otherwise, for the sake of the estrangements it will cause, and for the sake of our common country. Many of us, no doubt, have been naughty enough, and deserve more "spanking" than your mamma probably ever gave you. But, Doctor, we can not let you out of our "parish."—We are glad to hear that you were pleased with our answers to Mr. Goodwin. We seem, somehow, to have met the wants of a great many in those answers.—Your experience with maiden trees is that of a great many. Trees are planted so close in nursery-rows, that after the first year they become much injured. Some nurserymen understand this, and are now giving their trees more room, with the best results to top and bottom, and to the great satisfaction of their customers. Then, again, through carelessness in lifting, the older the tree the greater the injury the roots receive. We must keep talking about these things to get them right.—Thank you for your sympathy. We have some courage left, and a "determination to succeed."—ED.]

FRUIT-GROWERS' SOCIETY OF WESTERN NEW YORK.

(*Continued from page* 152.)

Subject 4. Which is the best stock for the cherry for general purposes, the Mazzard or the Mahaleb?

Mr. TOWNSEND thinks the advantage of cultivating the cherry tree upon Mahaleb stock is that its wood becomes more dense and hardy. The growth of the tree is more vigorous, and not as subject to burst the bark. In some varieties cracking and bleeding are prevented, and the trees grow more rapidly, with the wood not as succulent; not as pithy as on Mazzard. Has trees ten or twelve years old on Mahaleb, and they are producing good crops.

Mr. ELLWANGER would add, that particularly upon a clayey soil the Mahaleb stock is better than the Mazzard. Trees upon Mahaleb are less subject to bursting. Some kinds, as, for instance, the Black Tartarian cherry, must be worked exclusively upon Mahaleb; and others, such as Burr's Seedling, Black Hawk, Cleveland Bigarreau, May Bigarreau, etc., are much better so.

As to the growth of the tree, etc., if worked *low* upon Mahaleb stock, the bud will not outgrow the stock; and if the trees be trained as "low standards," it is all the better. Let the branches come out low, and never prune the tree at all after the branches attain the size of one's thumb. Prune your trees while young, and get them into the right shape; in fact, ALL trees should be shaped while young. Cherries worked upon Mahaleb grow more vigorously while young, and yet they do not make as large trees.

CHARLES DOWNING has seen cherry trees upon Mahaleb stock which are eighteen inches in diameter; and thinks them better for northern and western parts of our country than Mazzards.

Subject 5. The Northern Spy apple; what is the value of it as an orchard fruit?

Mr. BEADLE, of Canada.—The Northern Spy has for two years fruited with us in Canada, and seems to promise very well, bearing fine fruit and plenty of it. It is *all* fine, large, well-colored fruit, and hangs well upon the trees. This is quite a desideratum, especially exposed, as we are, to high winds in autumn.

Mr. BARRY.—When the Spy was first brought forward it was charged to be a very shy bearer, and to bear a large proportion of inferior fruit in the crop; but now we have had fifteen or sixteen years' experience with the fruit, and ought to be certain as to the real importance of the tree and the real value of the apple. Apples for market form an item of immense importance in our fruit growing farms, and I believe the Northern Spy has improved every year in quantity and quality, becoming finer and finer every year. I find it is now the best of all our winter apples, and one which will always be found a valuable sort to plant.

Mr. SHARPE, some fourteen years ago, got some of the scions, and grafted into the top of an old tree. After a while became discouraged waiting for the scions to bear, and directed a boy to bud them all over to pears. The pear buds failed; but that very year the tree bore four barrels of fine fruit, which kept nicely until the next April and May; and, sir, I never ate an apple that has the flavor nor the freshness which those Northern Spy apples had. This year that same tree bore five barrels of fruit, which sold readily at $1.50 per barrel, while other sorts at the same time brought only $1.00 per barrel. If any body gets discouraged waiting for their Spy trees to fruit, I would advise them to try budding them over to pears, (laughter.)

Mr. BROOKS.—In 1855 set out an orchard with one hundred and fifty Spy trees in the one thousand trees. Some neighbors said I had made a great mistake; that they had grafted over every Northern Spy that they had planted. Now this year my trees have fruited, and fruited finely. If this fruit is one which we can carry into April or May with good flavor, and in fine condition, it will cause me to say with friend Bissell, (as to this important subject of having fine fresh fruit in the spring,) that the area of human enjoyment is thereby greatly enlarged.

Mr. FISH, of Monroe County, spoke of the Northern Spy being called by some persons a great humbug because it would not bear fruit the first season after setting out. People are generally too impatient to have their trees bear very early. One of my neighbors, of this temperament, who had set out quite a number, became last year discouraged, and dug part of them up. This year, those which were left standing have borne fully and finely of handsome fruit.

Mr. HOAG had seen Roxbury Russet and Northern Spy in June, in New York. It is a most splendid keeper. Cultivators can make it bear earlier by thorough pruning, and checking the growth to wood. The fruit has never yet been over-praised. The pruning which I speak of should always be to make the tree very open, and grow spreading, and thus give sun to the whole inside of the limbs, and to every fruit.

WM. B. SMITH had pursued this plan of thinning out the top very thoroughly, and this year has had trees produce five barrels of fruit to the tree.

Mr. BARBER.—This Northern Spy originated in Ontario county, and the fruit was first tested there some forty years ago. It is a slow tree to come into bearing; often requires six or seven years to produce. You can't get a bushel from a tree that is seven years old; but when it *does*

pay, it pays. There are, however, localities where the crops can be hastened; for instance, upon the sunny sides of hills, in warm, rich, and deep soils. One of my neighbors has such trees in the centre of his orchard, upon a sunny side hill, and has had more profit from them, for the past fifteen years, than from any other trees in his orchard; and when he wants any more trees for profit he will plant Northern Spy. Other men in his neighborhood, whose trees are not in such favorable locations, are not as well pleased, and are grafting over their Northern Spy trees. There are some noticeable features about this variety. The trees need to be young and thrifty when planted, and you can not have good fruit upon them without extra care; keeping them pruned well and open, and not permitting them to overbear. The trees need a dry, well-drained soil, rich, loose, and deep, and good cultivation. The trees do not leave out too early, and consequently are not exposed to danger from late frosts from which some other varieties suffer. Apple-buyers watch them closer at market than any other sort. But a spot upon an apple does not affect the whole apple; even if it be half rotten, the other half of the apple is good, and retains its true sprightly flavor.

Dr. Sylvester stated that the Spy was extensively planted in Wayne county, and in most places was very fine. The trees are slow in coming into bearing; but when they *do* bear, they produce fine, sound fruit. The tree needs thorough, judicious pruning and cultivation, and careful thinning out of the branches. Any person, with a dry, nice soil, who will devote attention enough to the tree to keep it in good heart, will have fine crops of a delicate nice apple, and an apple that keeps, and keeps well.

Mr. Moody was a decided advocate for the Northern Spy. Many of his neighbors had planted it freely, and such as had not already grafted it over, never will; for the trees are now bearing enormous crops. The tree needs proper pruning, and the top should be kept open, for it is inclined to grow compact, and too much to shade the fruit. The not early leafing-out of the tree in the spring is quite an important advantage; for late frosts will sometimes kill back all the trees in the orchard, except Talman's Sweet and Northern Spy.

Mr. Hoag thought it a decidedly valuable tree, if well treated. The fruit is of superior quality, and such fine fruit always pays for good treatment. It does well if you give it sun enough by open pruning. Apple-dealers consider the Northern Spy the most valuable sort we have.

Mr. Townsend stated that, fifteen years ago, his father grafted the Spy upon the tops of two old trees, and in the sixth year from the graft they bore a crop of fine fruit. Has gathered nine bushels from those two trees. Picked the fruit upon a cool, dry day, assorted it carefully, headed up the barrels, and did not meddle with it until the 1st of April; but found that fully three-fifths were totally decayed, and the balance, which seemed fair, were decayed in the centre. My trees suffer from dry rot. The Spy is my favorite apple for eating, but they decay rapidly. Fruit-buyers dislike the blotches which it is apt to have upon the surface, and say that they "won't buy those blight, fungus blotches." My trees are upon a soil which is heavy, but well drained.

Mr. Barry was pleased to hear the opinions of the gentlemen who had spoken, representing all varieties of soil, and a circuit of a hundred miles or more; and, although they differ in details, the general verdict is that the Spy is a good apple. To be sure, it requires care, but no more than its ultimate value will justify. It requires a dry, warm soil, and some pruning; but so do *all* trees from which we get such decided returns. The thinning out should be done very lightly. This tree bears fine fruit, and it pays, and pays well, for good culture. The tardiness in coming into bearing is no objection, for the tree thus has time to become fully established, and is more sure for future years. The Spy bears enormous crops, and the fruit should not all be allowed to grow, or the limbs become thereby bent, and the sap obstructed, while the ground becomes poor and the tree impoverished by the production and ripening of such over-heavy crops. After a heavy crop of fruit, not only the Spy, but ALL apple-trees should be

well pruned, and the ground restored by careful cultivation. The fungus in certain localities is due wholly to local causes; it is not a general thing. As to the keeping, much depends upon the care in gathering, and on the care used in assorting previous to packing. In my cellar the Northern Spy is keeping as well as any variety.

Mr. L. B. Langworthy thinks he grafted the first tree with this variety in the county of Monroe, and has watched it closely. The tree needs pruning, and has a tendency to over-bear. The fruit has a very fine juicy, spicy flavor, and holds this flavor longer than any other apple in the world; while, as to beauty, there is no handsomer fruit. If carefully looked to, and well kept, there is no finer apple for the household; but for transportation to distant markets it has faults. Dealers do not like them for shipment because they are thin-skinned, tender, and liable to bruise.

Dr. Sylvester had found that his apples kept very much better by being sweated before being headed up in barrels. Never head up fruit while wet.

Ques. 6.—Is it advisable to plant, in western New York, the White Doyenné Pear for orchard purposes, in view of its present liability to crack and spot in certain localities?

S. B Gavitt, of Wayne county, would not recommend it generally in western New York; although there are some localities where, with a sandy or gravelly soil, it seems to have done well.

Mr. Smith, of Geneva, had noticed its success upon light soils, and had remarked that this year it was finer upon even clayey soils than ever before. Does not want to see finer fruit than some produced this past season.

Mr. Sharpe had set out, in 1858, about a thousand White Doyenné trees near his house, and they were doing finely. Never saw a crack nor a spot upon the fruit.

Mr. Maxwell thought that the disease affects the fruit worse upon old trees than upon young ones.

Mr. Barber thought the best mode of cultivating the White Doyenné was to cut the trees close, and get up good strong shoots, with large leaves, thus getting up a new action all through the tree, and more healthy fruit.

Mr. Smith supposed the disease to depend very much upon some local cause.

Dr. Sylvester agreed with Mr. Smith, for he had seen fruit crack badly upon the west side of a hill, while upon the east side, and not over one hundred rods off, the fruit was untouched and splendid. Thinks it can not be climate or soil which causes the disease in a case like that.

Mr. Townsend.—Upon my own grounds the fruit cracks badly, while upon the premises of a near neighbor the crop is first-rate. Thinks the cracking proceeds from an atmospheric cause; for the fruit upon both dwarf and standard Doyenné trees suffers alike. It must be a current of air carrying fungi to the fruit; for, in my case, it follows immediately a violent attack of pear blight. The fruit will be one day fair, and the next day with this fungus upon it.

Mr. Smith liked the White Doyenné because it is a fine hardy tree, and the fruit is one of the best market pears. It keeps easily, and ripens up easily and well, and is popular. Thinks all really fine pears more apt to suffer from diseases than the coarser fruit and coarser trees, which are hardier, and resist disease better; but these coarser fruits are not as good.

Mr. Hooker had found that of this variety very few were fit to ship—not one in ten; and this seemed a good test as to whether it is advisable to plant the tree.

Mr. Jacobs has purchased a good deal of this fruit, and finds that it is better in and about Geneva and Canandaigua than here in Monroe county. New York dealers by quantities of good-sized and perfect Doyennés from Ontario county. Pears with fungus upon them we dealers always throw out and refuse entirely. We only accept perfect specimens.

Mr. Ellwanger stated that the White Doyenné always does well upon his own grounds; but, as to the question under debate, would answer, No. There is no necessity for planting

Doyennés when we have plenty of others equally, or about equally, good, which are not subject to this disease.

Ques. 7.—What is to be understood by the term a standard, and what by the term a dwarf tree?

Mr. Townsend remarked that there was a great misapprehension among tree-planters as to these terms. Calls a standard tree a plant growing upon a seedling stock of a variety where the plant will, when full-grown, make one of its own kind. Calls a dwarf a tree from a bud inserted into a plant which is analogous in species, but of a diminutive growth.

Several members spoke very briefly.

H. E. Hooker thought the term "dwarfing" was applied to the working of a scion upon a stock, which tended to produce diminutive growth, and thus tended to fruitfulness, and to increased size of the fruit. In the Pear this effect was produced by working upon the Quince as a stock. There are other terms which result from other causes; as, for instance, a tree of any species, or working, or size, may be rendered "pyramidal" by suitable pruning. In the Pear we call a standard tree one which is worked upon the Pear, or standard stock. Working Apple scions upon Paradise stock induces a diminutive growth. Working Cherry upon Mahaleb induces a growth not so much dwarfish, and I think there is some impropriety in applying the term dwarf to that. Working Plum upon the wild Plum stock produces a tree somewhat dwarfish. Simply pruning a tree low does not thereby render it a dwarf tree, because such pruning does not tend to the diminutive growth or increased fruitfulness I have spoken of.

Mr. Bloss, of Monroe county, understood by the term "dwarf" a tree worked upon a shrub, or upon that which partakes of a shrub in its character, and thus the tree becomes divided in its character between the tree and the shrub.

Mr. Ellwanger differed. Tall trees are called standards always, and of old times, no matter how or on what they are grown. Dwarf means bushy, no matter what cause has rendered them bushy.

Dr. Bristol, of Livingston county, on the other hand, thought that, for instance in the Pear, a dwarf means the tree worked upon the Quince stock, and asked, "If a nurseryman gets an order for a hundred dwarf Pear-trees, what would he put up? Would it be merely a large tree cut down low? or would it be, as I have said, trees from Pear scions worked upon Quince stocks?" Trees (in grounds) which are kept to produce samples of varieties of fruits are "specimen" trees, and are not necessarily standard trees.

Mr. Barber thought we ought to have these arbitrary terms settled and made clear, so that all persons should understand the terms alike. A standard tree is a tree worked upon a similar stock; while a dwarf grows from a scion worked upon a similar *variety*, or species, of stock, but which is, in fact, a dissimilar stock. You may make a tree grow dwarf by cultivation and pruning, even as the Chinese dwarf the sturdy oak; but these are exceptions.

After remarks to the same intent from Messrs. Smith, Fish, and Herendeen, the Society passed to

Ques. 8.—What influence has the stock upon the graft in modifying or changing the quality of the fruit?

Mr Sharpe spoke; and then—

Mr. Brooks remarked, that more attention should be paid to the manner in which trees were propagated; for we often see the same variety of apples which, growing upon different trees, have not the same flavor. Certainly, the best scions are taken from vigorous trees, and the same rule will apply to stocks. The character of any stock, or of any bud, will perpetuate itself as well in plants as in animals.

After remarks from Messrs. Ellwanger, Barber, and Langworthy, who agreed that there was a strong analogy between vegetable physiology and animal, the further consideration, was

on motion of J. Vick, Jr., postponed until next meeting, and members were requested to prepare themselves for the discussion.

Ques. 9.—In transplanting trees, is pruning the tops and roots of importance? and if so, under what circumstances?

Dr. Beale thought this an important matter.

Mr. Barber.—In taking up trees, we should take up all the roots we can. Injured roots should be examined, and the injured parts cut away. Where the roots are thus pruned clean there are more small roots thrown out from the pruned roots than from roots less mangled. The top should be pruned to correspond, for the top of the tree is the demand, and the rest is the supply. Do not prune the top too much; for it can be so severely pruned as not to leave wood-buds enough to demand and draw up the sap from the roots.

Mr. Hooker thought that other things, such as soil, manure, &c., were of more consequence. There is a wonderful power in nature to recuperate the strength of plants; and fruits have a strong power to adapt themselves to circumstances. It is astonishing how readily trees will adapt themselves to the places were they are situated. Has tried experiments, and the growth of the trees that were pruned was greater than that of those not pruned; but the total top amounted to only about the same. As an abstract question, a great deal is to be said on both sides. Mr. Hovey thinks the pruning should be done the year after transplanting, and others think we should prune *when* we transplant. There are various ends to be served by pruning. If we want the plants to bear fruit immediately, we prune in one way; we prune in another way to produce a bushy tree; in another for a pyramidal tree; in another way to grow a larger tree.

Mr. Herendeen said that John J. Thomas once tried the experiment of these different modes of pruning the tops upon the same sort of tree, leaving the roots all alike, and all growing under similar circumstances. Where not pruned at all, the trees made little if any growth. Where the tops were pruned moderately, the trees grew somewhat, sending out shoots five or six inches in length, and looked decidedly better. Where the tops were pruned severely, the trees grew thriftily.

Mr. Barry suggested that these nurserymen's experiments at home were not upon trees which are like the trees that reach their customers, and we must not be guided implicitly by them; but would recommend that in all cases the tops should be reduced a good deal. We import trees from France which reach us with tops dry and shrivelled, and we always prune them in, and these trees go on with their growth. The late A. J. Downing impressed upon tree-planters the importance of pruning the head of the tree. We all know that little trees will grow well, and the manner of pruning their branches depends upon circumstances; but, at any rate, all dry and dead roots, as well as all dry and dead branches, should be cut out.

Mr. Barber.—The roots should be placed in the earth, not in wads or bundles, but spread out as nearly as possible like they grew, and every dry or dead part, or decayed portion of either a root or a branch, should be removed under all circumstances.

Mr. Herendeen suggested that these fine fibres and wads of roots spoken of are almost always dead; and if we examine trees, we shall find that all the new growth of the roots is from roots fully of the size of a pipe-stem.

Mr. Sharpe spoke of transplanting dry yearling Peach-trees, and cutting off *the whole* top, leaving the stumps only twelve to twenty inches in height, and they all lived and grew.

Mr. Langworthy remarked, that injudicious pruning might damage trees and plants; but close, careful pruning, when transplanting, does not destroy trees.

After some further desultory discussion, the Society adjourned, to meet in June at Syracuse.

[The proceedings, we are glad to learn, will be published, and may be had, we presume, on application to Secretary Bissell, Rochester, N. Y.

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